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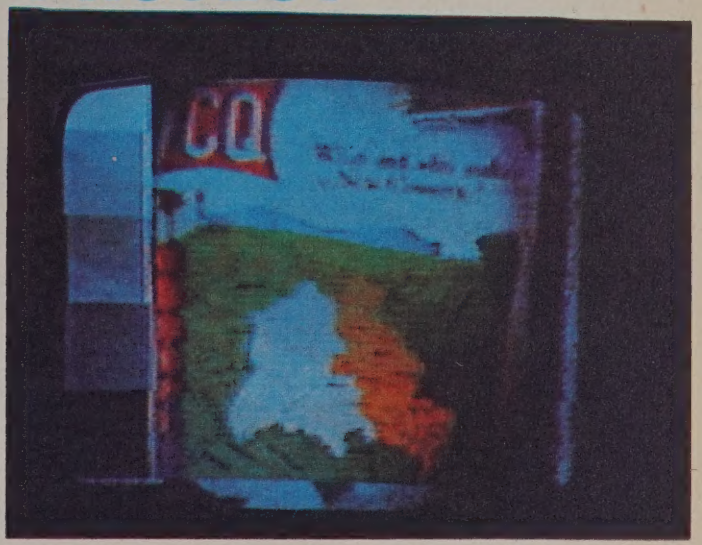
AMATEUR TELEVISION MAGAZINE

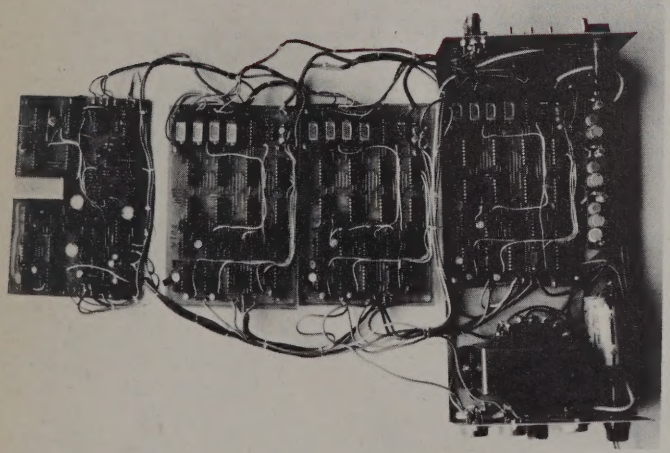
WBOQCD MIKE STONE (RTTY JOURNAL) JOINS A-5 SSTV DX COLUMN,
SSTV PROJECTS: STARTS IN THIS ISSUE

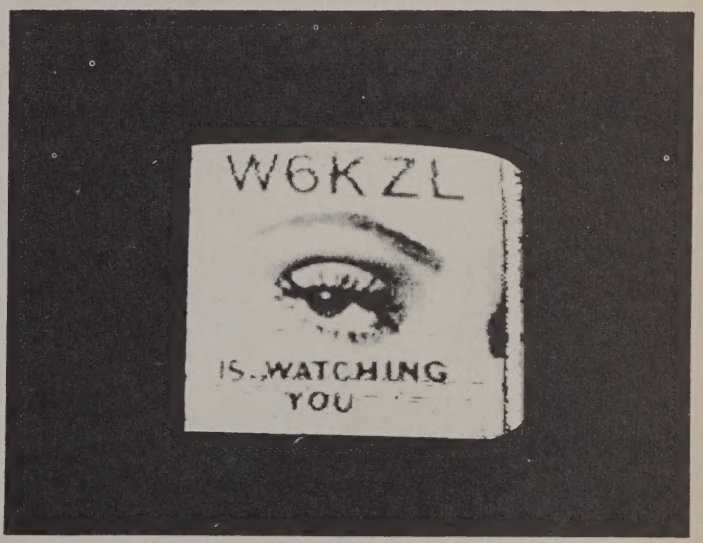
MARCH - APRIL, 1980

Vol. 10, No. 2

SPECIAL PROJECT







BUILD A COLOR DIGITAL SSTV TO FSTV CONVERTER

BY JAØB2C

The Robot Model 800
SUPER TERMINAL

Not just a keyboard,
but the first integrated specialty mode terminal.

ROBOT

Using microprocessor technology, ROBOT has created the most complete specialty mode terminal ever built for amateur radio.

COMPARE SUPER TERMINAL'S FEATURES, THEN COMPARE OUR PRICE..... $845

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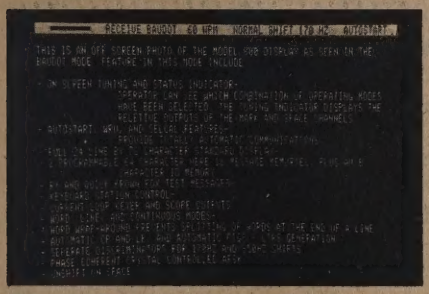
BAUDOT, ASCII, MORSE, SSTV! ROBOT'S Super Terminal has them all!

There are no hidden costs. Most RTTY/Morse code systems require the use of costly external hardware and modifications in order to achieve the capability and performance of the Super Terminal. Some have receive or send capability, but not both. Some don't send or receive Morse code, others only have single line display, most have no terminal unit. One even requires a full computer to function.

The Model 800 Super Terminal offers a complete list of features and capabilities, including our built-in demodulator, all in one package that connects directly with your amateur station's transmitting and receiving equipment. All that's needed to have a complete operating system is the addition of a standard TV monitor.



BAUDOT/ASCII OPERATING FEATURES

DISPLAY: Full 24 line by 72 character standard TTY display.

WORD MODE: Transmits a complete word each time the space bar is depressed. Any mistakes made in the word can be edited out prior to transmission.

LINE MODE: Transmits an entire line when the carriage return line feed key is depressed. Allows editing of the entire line prior to transmission.

AUTO START: The Model 800 writes characters on the screen only after detecting the presence of an incoming RTTY or ASCII data signal. This prevents printing of unwanted random characters on the screen while tuning or during gaps in reception.

PROGRAMMABLE WRU (WHO ARE YOU) AND SELCAL FEATURES: Upon receiving a user programmed 8 character code, the Model 800 will automatically key the transmitter and transmit one of its 64 character (HERE IS) messages. Upon receipt of the user programmed 8 character SELCAL code, the Model 800 will automatically go into receive mode and store up to a full page of received information in its display memory.

HERE IS: The Model 800 has two 64 character programmable HERE IS messages.

WORD WRAP-AROUND: Used in the receive mode, this feature prevents splitting of words at the end of a line by automatically moving the text of the last word to the following line.

AUTO CARRIAGE RETURN, LINE FEED

USOS-UNSHIFT ON SPACE: When used, this feature shifts the keyboard back from figures to letters automatically when the space bar is hit. This prevents unintentional transmission of strings of figures.

KEYBOARD STATION CONTROL

ON SCREEN STATUS INDICATOR: A status line at the top of the screen tells the operator exactly which combination of operating modes have been selected. This eliminates the confusion which can result from the many combinations of operating modes by giving the operator direct and immediate feedback as to which modes have been selected.

ON SCREEN TUNING INDICATOR: Accurate tuning is an absolute requirement for accurate trouble-free reception during poor signal conditions. The best results are obtained when the output of the mark and space discriminator filters are equal in amplitude. The on screen tuning indicator in the Model 800 is the "plus-plus" type, which provides this information. The indicator is in the form of a bar which increases in length with respect to its input signal amplitude. The indicator alternately displays the outputs of the mark and space discriminators. The operator then tunes the receiver so that the bar does not jitter, which means that the outputs of the two discriminators are evenly matched. This method of tuning is more accurate and effective than some other methods, such as LED's or meters. The Model 800 also has scope outputs on the back panel so that an oscilloscope may also be used as a tuning aid.

CURRENT LOOP KEYER FOR HARD COPY

PROGRAMMABLE NARROW SHIFT ID

DEMODULATOR: The demodulator built into the Model 800 is superior in quality to any RTTY demodulator offered on the market. The key feature which makes this claim possible is the use of separate two tone active discriminator filters for demodulation of the RTTY signal.

ADDITIONAL ASCII OPERATING FEATURES: The Model 800 will send and receive ASCII at 110 baud. It has all of the transmission and editing features of the RTTY mode. In the ASCII mode, the Model 800 can send and receive both upper and lower case characters.

SIMPLE TO OPERATE

One of the most important features to keep in mind with the Model 800 is that all functions that are used frequently are easily accessed by the user. Many competitive units boast elaborate features which are either not used in amateur operation or that require complicated access procedures which make them inconvenient. All of the frequently used control functions in the Model 800 are either associated with a key which is labeled with the function, or have silkscreening above the key which describes the function. Since the Model 800 is a complete RTTY/Morse system, station interconnection is much easier.

MORSE CODE OPERATING FEATURES

OPERATION: The Model 800 has all of the transmission and editing modes of RTTY during Morse code operation.

MORSE AUTOTRACK: The Model 800 automatically tracks incoming code without manual speed adjustment. The speed range for transmission and reception is 3 to 99 words per minute.

SIDE TONE OSCILLATOR: The Model 800 has a built-in side tone oscillator so that the operator can listen to incoming code as it is interpreted by the computer.

MORSE CODE TRAINER: The Model 800 can be set to generate random five letter groups of characters at any preset speed for Morse code training purposes.

SPEED INDICATOR: In addition to all of the other functions, the status line in the Morse code mode indicates the speed of the incoming code.

SSTV OPERATING FEATURES

The ROBOT Model 800 allows alphanumeric characters to be typed in an SSTV format, displayed on a TV monitor, and transmitted as a normal SSTV picture. This eliminates the need for "menu board" or hand-lettered SSTV pictures, thereby freeing up the slow scan camera or scan converter for other operations.

To transmit a picture, the operator merely types his message out on the keyboard while watching it appear, in place, on any fast scan display. A "winking" cursor indicates the next character position on the screen, making it an easy matter to quickly and easily format your message. Complete cursor control allows for easy access to any position on the screen. Cursor commands include: move cursor up or down, left or right, and home to top of screen. Additionally, there are carriage return-line feed, delete character and clear screen controls.

See it and try it at the Dayton Hamvention!

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ATV Magazine and ATV In A Nutshell are now on permanent archives at the Library of Congress

DEVOTED TO HAM TV

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Amateur Television Magazine

All correspondence to:

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NEWS

Many of you have made inquiry for the CATJ audio/video kit for use with the uWave assoc Gunnplexers. These are no longer available from A5. You can get them from G. R. Whitehouse, or write to Satellite TV Digest, c/o Bob Cooper, K5KHT. When our new subscrip tion forms are printed the item will be deleted.

This issue we welcome a new regular feature writer, Mike Stone WBØQCD. Mike has been very active in SSTV and RTTY and has had a regular column in the RTTY journal. Mike joins staff regular Dave Ingram to provide a second SSTV authority. Mike's expertise is in SSTV DX, especially on 10 meters where he has had over 500 SSTV QSO's and well on his way to SSTV DXCC. Mike is very active on VHF as well. Mike worked overtime for material for this premier issue and I know you will enjoy it.

Our special feature in this issue the the digital scan converter (SSTV to FSTV) by our friend Takao Yabana, JAØBZC, who is well known to A5 readers. Takao is a human dynamo working long hours in his store, many hours with his family and even more developing projects in his ham shack. Does he ever sleep? This project like his last is easy to duplicate easy to adjust and uses no special hard to get parts. This should be a real breakthrough for those who wish to roll their own SSTV converter. AND IN COLOR TOO!!!

You may be wondering why we have an ad/non ad for JS/A, "FTC REVOLT". Well, afew "businessmen" have raided ham radio off and on over the years, including the TV field, promising the world and delivering little or nothing. The JS/A case is interesting because in my eyes, and from my personal experience, the FTC has picked on the wrong company. Its about time the FTC took after some of the harder fly by night outfits which rip us off for millions on purpose (need I list them?) even advertise and promote on the ham airwaves, just on the edge of the law, then when "discovered'to be shams, cry foul, send threatening letters to customers, and slink off, to return in a year or so to do it again. JS/A has run a business in a legal and even fair manner, yet because of problems beyond their control, ahve run afoul of the technicalities of rules made by folks who have never had to earn a living on their own merits.

No, I am not going to turn A5 into an anti FTC or anti-government publication, but I think it should be made known to everyone that the government has been intruding in mindlessness in many areas which directly hurt our economy and in no way help the general public. Much like the fiasco still brewing on tower safety which we called your attention to in the July 1977 issue, in which OSHA was trying (and still) to get all towers, masts, antennas etc insulated against 7200 volts because a few stupid or careless individuals didn't have the common sense to avoid power lines when putting up CB antennas. Not professional antenna installers, not dealers, not hams, but a handfull of individuals, often drunk, or careless. You can't legislate common sense. Oh well, enough. Not to brag, but 73 Magazine just made their first mention of this in the Feb. 80 issue. Once again, A5 is first (well, second cause we got the stuff from the EIA and Unarco/Rohn.)

DAYTON 1980

A5 will be there! With the stock pile of "Nutshell" getting low, it will soon be that you will not be able to purchase a copy for yourself. So, if you have not yet bought your copy, now is the time to do it. With only about 300 left on hand I expect we will sell out at Dayton or shortly thereafter. I'm still waiting for a sizeable response to the question, where do we go from here? Reprint, reprint with changes, vol II, all new book? Let us know. It takes about a year to do a book, and we need to start soon if we are going to avoid a large hole in the ATV information field.

$2500 and its ours! If we get enough subs and books sold at Dayton, we can buy an IBM for doing the mag, which will allow electronic editing, something which time does not permit now. It will help us provide a more professional publication, less typographical errors, neater pages, and lessen the workload on your scribe. At Dayton, and ONLY AT DAYTON, we will offer, ONE FREE SUBSCRIPTION TO A NEW SUBSCRIBER FOR EACH THREE YEAR NEW OR RENEWAL SUBSCRIPTION. Get a buddy to sign up when you renew for three years and your buddy gets his for free. If your buddy signs up for a three year subscription, you get a one year renewal free! Frankly, I'm doing this cause we need the bux to buy the IBM. Besides sub rates will go up soon.

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A PRIMER ON WHAT IT IS AND HOW IT WORKS!

A collection of notes, schematics, parts lists, theory, etc. accumulated over the past year, describing what it is and how it works. Covering in detail the two most popular systems of scrambling and decoding in use today.

Learn how the sync is suppressed at the transmitter and restored at the receiver-- how the sound is transmitted and recovered. Representative circuits for each function are fully illustrated and explained. Block diagrams, spectrum analyzer photos, typical waveforms and schematics included. The pros and cons of the many alternatives are discussed.

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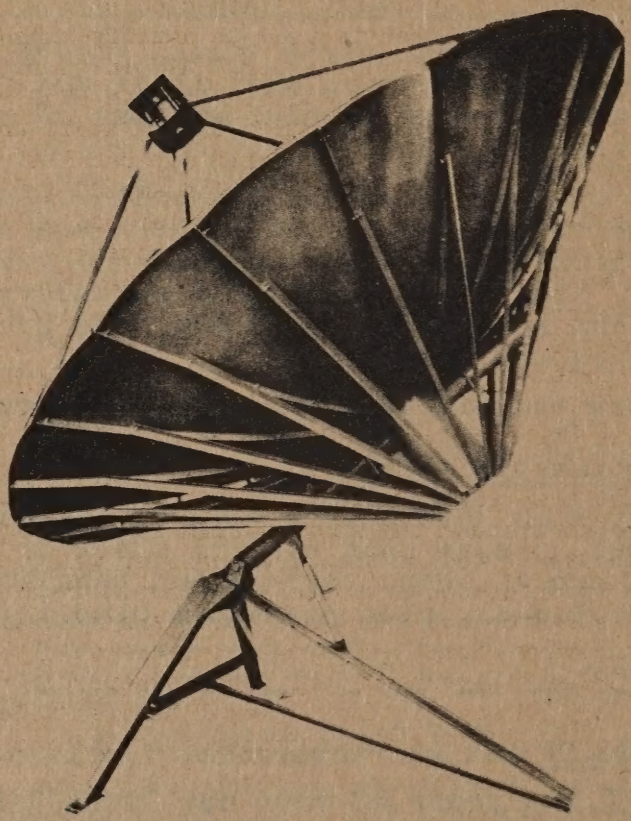

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Polar Mount:
Approx. 265 lbs.
Other Mounts
Optional

COLOR

Zinc Chromate
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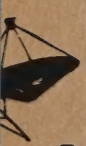

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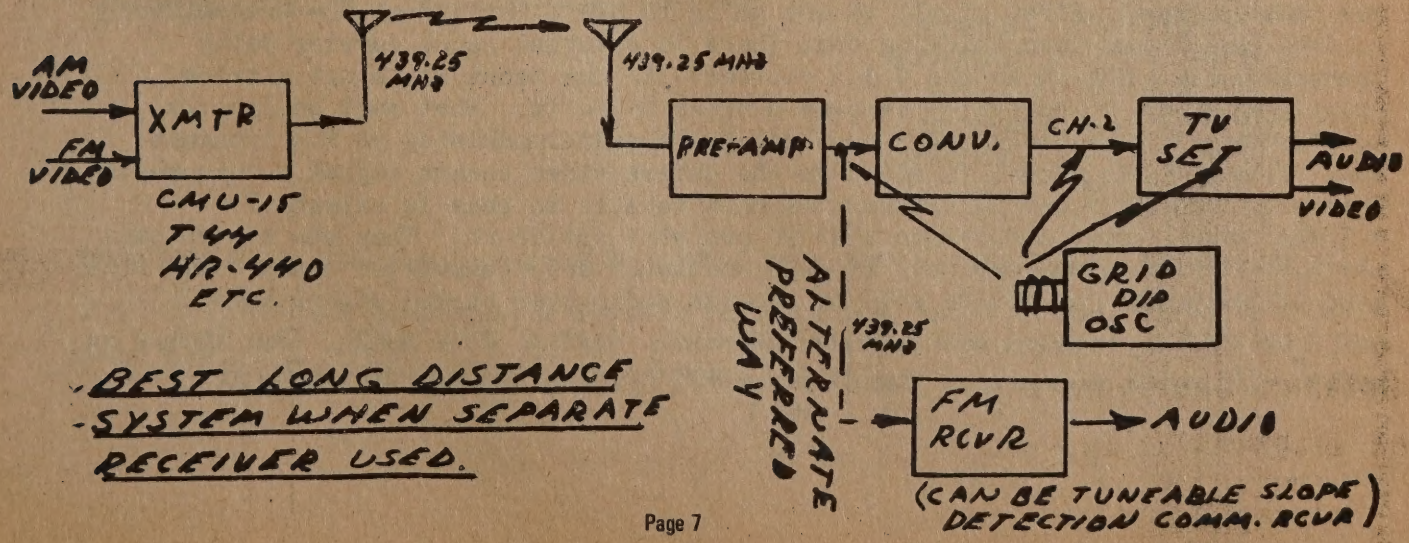
"Fast Delivery"

Indiana UHF-ATV Newsletter

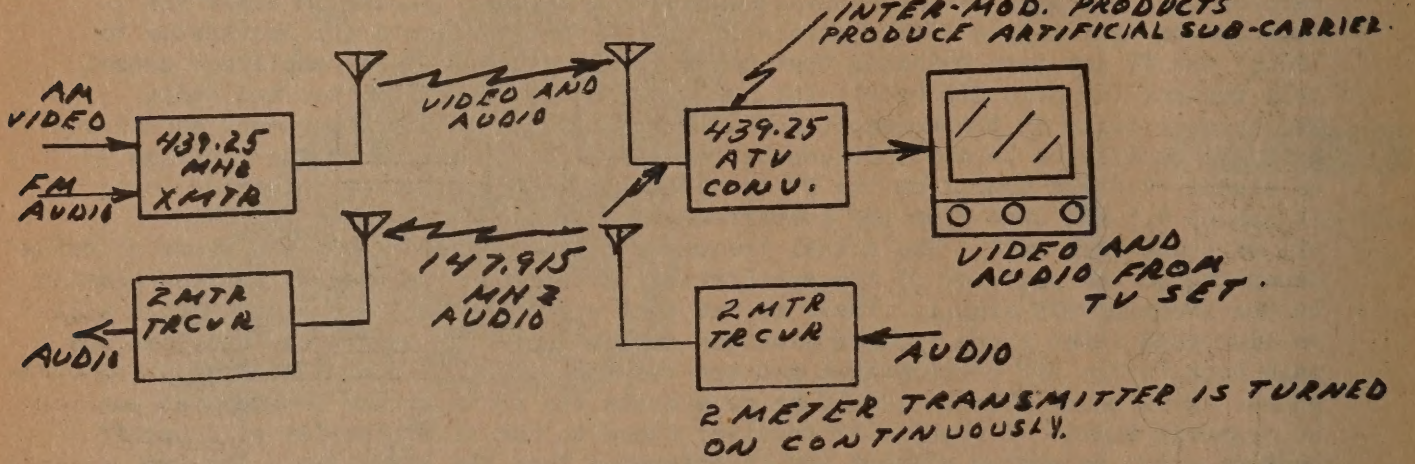
SOUND ON ATV: by Don Miller W9NTP

Many people like to discuss the many ways of putting sound on ATV without really understanding the problems and the efficiencies involved. First let us discuss the best way to do this. It has always been known that FM modulating the video carrier with sound is the most efficient and easy way to accomplish the task. It makes it possible to communicate long distances by voice before the signal strength has built up for video work. The best of FM techniques developed can be used for signal detection. Contacts over distances of several hundreds of miles can be easily done. The only problem is that it is not normally compatible with TV receivers and some other technique must be used to receive the voice signal. Let us examine the reason why.

Television as we know it uses a sound system called "intercarrier". This is a great system since it makes it impossible for the voice to be received in a different part of the spectrum than the video signal. It works by transmitting the video signal and audio signal exactly 4.5 MHz apart. When these two signals arrive at your television set an automatic IF frequency is detected at the second detector and a separate 4.5 MHz IF amplifier is used to amplify this built in "IF frequency" and detect the FM on this subcarrier. ATV in the system described above does not have this subcarrier with FM audio. It does have a video carrier that has been simultaneously modulated with AM video and FM audio and this can be used with a local oscillator in the form of a grid dip oscillator to "fool" the TV set into thinking that there is a subcarrier. The amplifier cannot tell whether the grid dip oscillator had audio or the video carrier had audio. The speaker talks in the normal fashion. The question is what frequency should the grid dip oscillator be set? It can be injected 4.5 MHz away from the incoming 70 cm signal, 4.5 MHz away from the TV channel used in the receiver converter, or it can be 4.5 MHz away from the converted video signal in the receiver IF. All of these work well. The actual frequency in some cases is 4.5 MHz above or below depending on the position of the oscillators in the converter and TV set in relation to the incoming ATV signal. There is one more way to detect this audio. This will be discussed later since it also provides duplex operation. That is, simultaneous talk back to the ATV station that you are viewing. This is just like one way picture-phone. More about this later. Make no mistake the above system is the best way to transmit audio. A regular FM receiver tuned to the video carrier will permit perfect audio reception without any interference from the ATV video. The two block diagrams are shown below. This system has been used for years by Indiana hams. The FM receivers can be HR-440 or the very cheap Dyna-scan receivers which have been sold through the club for $25 from Science Workshop. Only when a separate receiver is used can the operator expect to copy FM signals over several hundred miles. The beat frequency grid dip oscillator works well for the distances that you can enjoy ATV.



Another good way to receive audio from an ATV carrier that has been FM modulated is to use your available 2 meter FM receiver. Let us say that you have an ATV transmitter on 439.25 MHz. Any new systems should be put on this 70 Cm frequency. Set your 2 meter rig on the frequency of: 439.25 plus 4.5 Mhz divided by three. Your hand calculator will show that the calculated frequency is: 147.916666666. Probably your synthesized rig can be set on 147.915 Mhz. This is close enough. It is obvious that you can communicate with another station on this frequency. It is a good choice since it is not a repeater channel or neither is it a listed simplex frequency. This means that we have it to ourselves. There is something else that happens in your ham shack. You are looking at a station on 439.25 Mhz with both FM audio and AM video. When you push the mike button a carrier is generated locally on 147.915 MHz and instead of complete black out of the video as usually happens, your signal is multiplied by the internal non-linearities of your solid state circuitry and produces beautiful audio coming from your TV receiver. This is exactly the same as when you used the grid-dip oscillator but this time it is crystal controlled, and provides full duplex audio with the other station. You can talk on 2 meters one way and listen to the other ATV ham on your TV set. Your 2 meter rig is turned on continuously so remember to identify every ten minutes.. I feel that this is the best system yet for audio reception on ATV. Again it is marginal over long distances but it works great over distances that you are likely to receive video. Your 439.25 rig is already on FM audio and since you probably already own a too expensive 2 meter rig, this is an opportunity to get more use of it. The system is block diagrammed below.

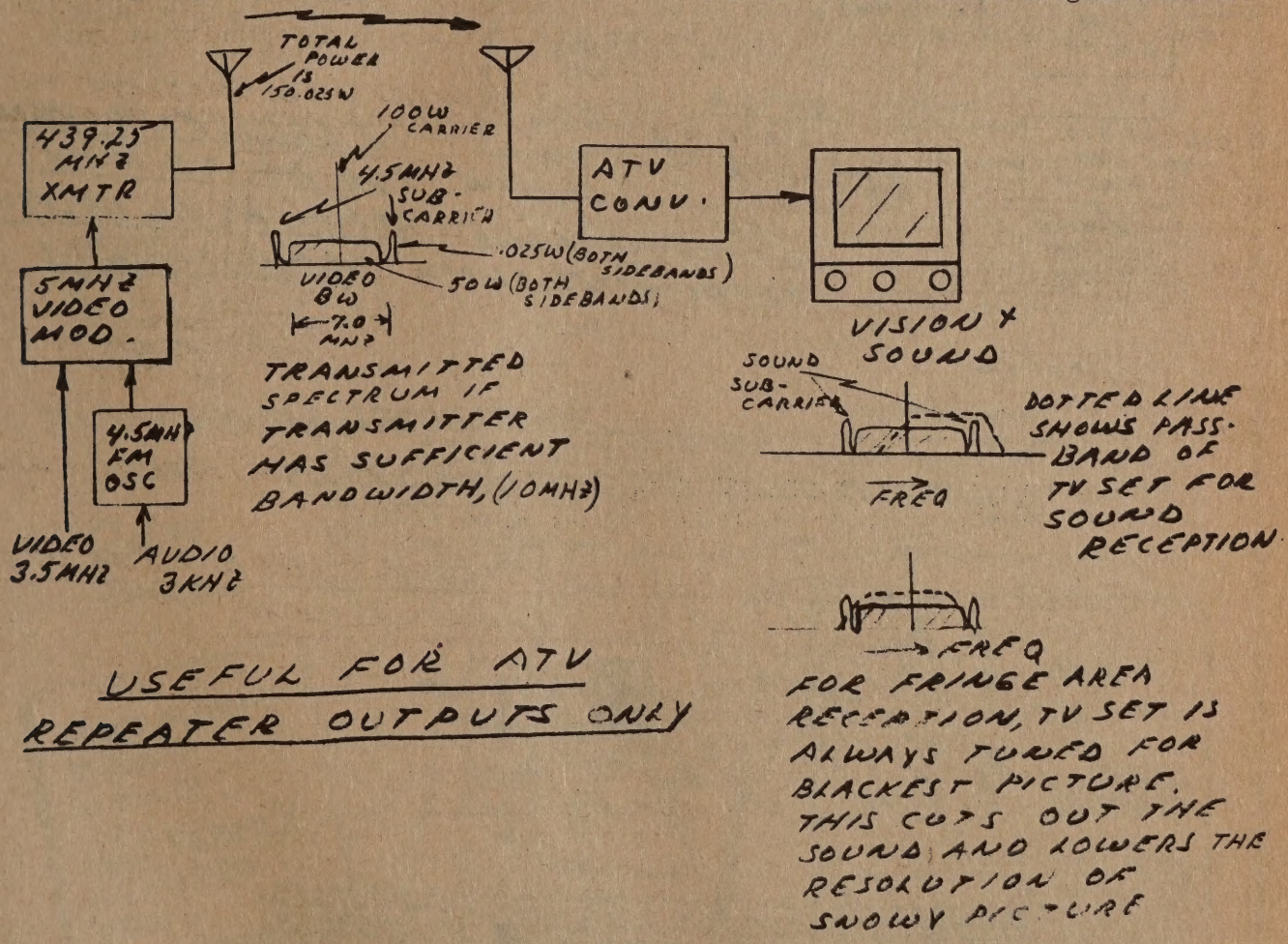


FULL AUDIO DUPLEX WITH ONE WAY TELEVISION
BEST LOCAL ATV SYSTEM

Last but not least let us consider the other ways to put audio on an ATV signal. We hear lots of talk about a subcarrier sound system. Let us explore how this is done. First of all we are going to use a "trick" at the transmitter to fool the TV set into thinking that there is a actual sound carrier being transmitted 4.5 MHz above the video carrier. In one sense, it is not a trick in principle but it certainly becomes a trick to do it. What must be done is to provide a 4.5 MHz oscillator that can be FM audio modulated at the transmit end. This 4.5 MHz signal is added to the camera video camera signal. This means that your modulator and TV transmitter must be able to pass in excess of 4.5 MHz video. Most modulators that we own will not do it. They won't even pass the 3.58 MHz color subcarrier. If your modulator and transmitter can provide this kind of bandwidth you may be able to provide audio over strong signal paths.

DAYTON FSTV program will feature Dayton's DARA ATV RPT. Don Miller on MSTV. Clarence Munsey on simultanous SSTV/voice modulation system.

Back in the old AM days every ham knew that it took approximately half as much power for the audio as for the carrier. As an example, a 100 watt carrier must have 50 watts in the audio sidebands to be fully 100 percent modulated. Things are not quite the same with ATV since some like to talk about one sided sideband called vestigial but for discussion I am going to stick with two sided 100 percent modulated video. The bandwidth of your video is about 3.0 MHz. The bandwidth of the audio is 3 Khz. Since both of these signals are present to consume the R.F. bandwidth and assuming constant spectral density, the spec.usage is 2 times 3 Mhz to 2 times 3 KHz. This ratio is 6000 KHz to 6 KHz. The ratio is 1000 to one.
In terms of watts per cycle this is 30 db. Your audio can never be more than 30 db below the video signal. This assumes near 100% modulation for the video. When you detect the audio you can only use one of the subcarrier sidebands in your TV receiver so you are down another 3 db in detector efficiency. The best that you can do is 33db below the video signal. Let us imagine that we have 100 watts in a video carrier. There is a total of 50 watts in the sideband energy. Only 25 watts of the video will be received by the TV set since we are forced to tune the TV set to receive only one sideband of the video because of the necessity to align the audio subcarrier with the TV passband. The audio will be 30 db less than the 25 watts of video. This calculates to be: .025 watts. This is why I feel this system usually does not work unless the total signal strength is unusually high. Some approximations have been made above. The block diagram follows:

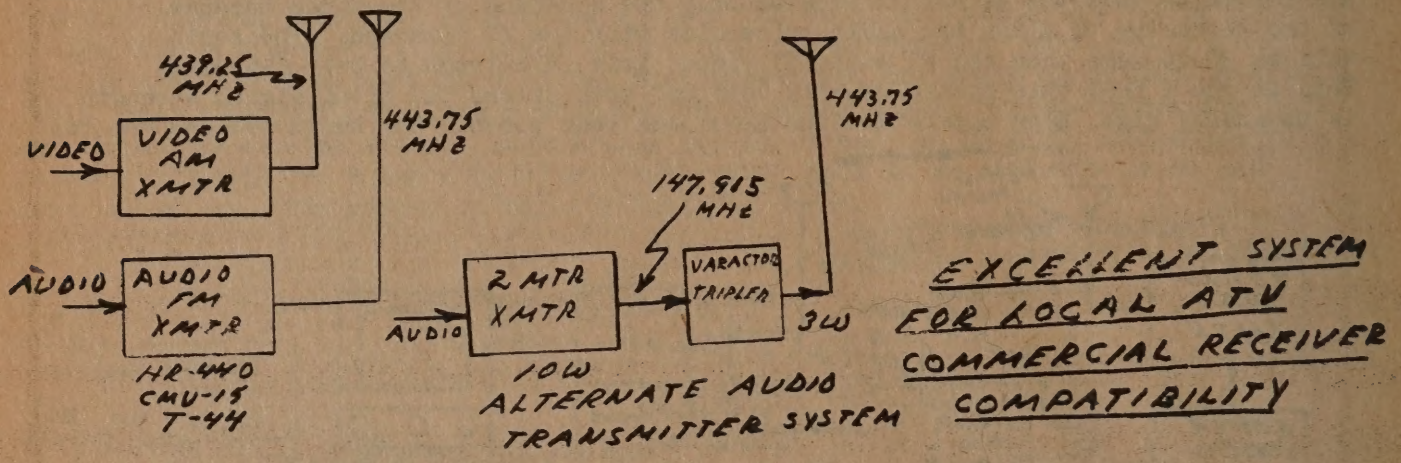


USEFUL FOR ATV REPEATER OUTPUTS ONLY

FOR SALE" 100% duty cycle, KW, CW, NCL-2000. FB cond. $700 (half price) KB9FO. Will have at Dayton if not sold before hand, in A5 booth. First $$ in hand gets. Great for SSTV!

Last but not least let us consider the commercial way to generate audio with our ATV transmission. The commercial people have a separate transmitter exactly 4.5 MHz above the video carrier. This can be a HR-440 FM transmitter or one of the surplus commercial transmitters such as a CMU-15 or T-44. The transmitter is put on a crystal controlled frequency of 439.25 MHz plus 4.5 MHz. This is 443.75 MHz. If you are buying a crystal you might as well buy the exact frequency needed. The transmitter is best connected to a different antenna than the video transmitter. The commercial people use diplexers to connect the two transmitters to one antenna but there is power loss in the process. The best way is two separate antennas mounted on the same mast and approximately the same gain.

Another cute way to avoid buying a separate 443.75 MHz FM transmitter is to use your two meter rig and put a varactor tripler in the output feeding the 70 cm. antenna. This works very well and costs very little since there are no additional power supplies and other complexity. The systems are block diagrammed. below.



The HALO

High Frequency Dummy Load

This 52 ohm dummy load consists of 12 - 620 ohm, 2 watt resistors housed in a salve can. The load is useful to 175 MHz. It is capable of dissipating 30 watts on a 50% cycle and 50 watts on a shorter duty cycle.

Start construction by filing the outboard shoulder of a UG-176/UHF sleeve to a 2.5 mm (3/32 in.) height. Tin the inner shoulder of the sleeve and the outboard end of the PL-239 fitting. The tinned areas indicated as "solder" in Figure 1.

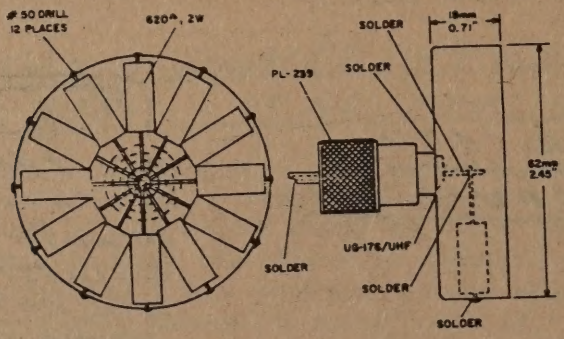


Figure 1

Next, drill and ream a hole in the center of the bottom salve can to accommodate the UG-176/UHF sleeve. Then drill 12 #50 drill holes around the periphery of the can. They are on a line half way up the can. Tin area inside and out around each hole, mount the coax connector on the bottom and sweat solder in place. Solder a 70 mm (2-3/4 in.) length of #14 wire to center of PL-239 connector extending into the salve can. Fit each 620 ohm, 2 watt resistor in place between the center conductor and the hole drilled in the rim of the can. Clip outer end about 1 mm (1/32 in.) beyond can and solder. Form resistor wire approximately half way around the #14 wire. After 12 resistors are mounted, consolidate their other ends about the #14 wire and solder. Clip excess from #14 wire. Fit on the cover and you have a shielded dummy load.

by William J. Goodwin, AFA1DO

(Tnx AFMARS Newsletter)

TNX. 6 Meter Club of Chicago

W9NTP 12/13/79

The next Indianapolis, ATV-UHF Club meeting will be MAY 10th at Ft. Harrison, Indianapolis. Technical talks, Home Brew Contest, Refreshments, Equipment Displays and Demonstrations.

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Two-meter beams deliver maximum gain and clean patterns, with VSWR of less than 1.2:1 across the entire 144-148 MHz range. High grade insulating materials, weather-resistant aluminum boom and elements. 12, 14 and 16-element beams make outstanding moon-bounce building blocks.

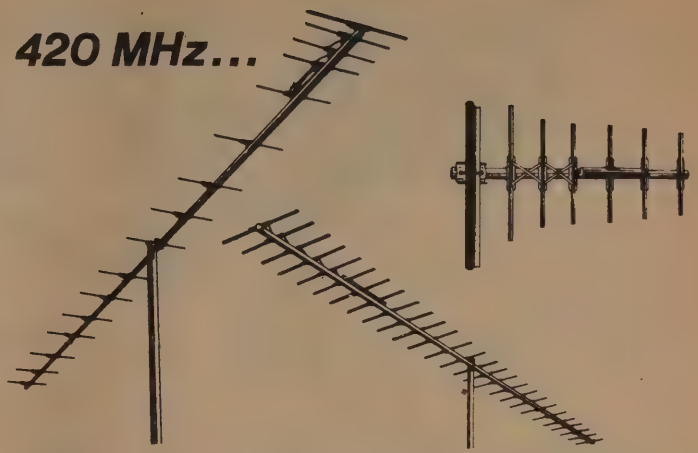
14-Element KLM-144-148-14 **$65.95**

Gain: 14.2 dBd. Beam width at 3 dM pt.: 18 degrees. Feed impedance: 50 ohms balanced (KLM 1:1 Balun, 144-148-50 optional). Boom dia.: 1½". Boom length: 17.33'. Max. mast size: 1½". Center mounting. Wt.: 8 lbs.

16-Element KLM-144-148-16 **$72.95**

Gain: 14.8 dBd. Beam width at 3 dB pt.: 16 degrees. Feed Feed impedance: 50 ohm balanced (KLM 1:1 Balun, 144-148-50 optional). Boom dia.: 1½". Boom length: 20.66'. Max. mast size: 1½". Center mounting. Wt.: 10 lbs.

420 MHz...



A versatile series of KLM beam antennas in a variety of configurations: broadband rear-mount type for horizontal or vertical arrangement, ultra-high-gain DX type, and optimized long boom Yagi for narrow-band use. All have VSWR less than 1.2:1 across the entire band. Maximum mast size: 1½".

6-Element KLM-420-470-6 **$19.95**

Frequency: 420-470 MHz. Gain: 8 dBd min. F/B ratio: 20 dB min. Beam width at 3 dB pt.: 30°. Feed impendance: 50 ohm balanced (Balun 420-470-50 optional). Boom dia.: 1". Boom lgth.: 2'. Mounting: End or center; horizontal or vertical. Weight: 1.2 lbs.

14-Element KLM-420-470-14 **$31.95**

End mountable; vertical or horizontal polarization. Excellent for repeater control. Frequency: 420-470 MHz. Gain: 13.7 dBi. Beam width at 3 dB pt.: 24°. F/B ratio: 20 dB min. Feed impedance: 50 ohm balanced. Boom dia.: 1". Boom length: 4.75'. Wt.: 4 lbs.

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$24.95 EA.

(Specify Band)

Sleeve baluns feature Teflon and low loss airline construction. SO-239 connectors with 144 and 220 MHz baluns; "N" fittings with 432 MHz. Many ratios available.

PLEASE ADD $3.50 PER ANTENNA FOR SHIPPING AND HANDLING (CONT U.S.)....CREDIT CARD ORDERS MAY DISREGARD - WE WILL FIGURE EXACT COST

FAMOUS-NAME BRANDS IN STOCK . . .

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Model 43

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KOYO SOLID STATE CCTV CAMERA MODEL TVC-1000-2

Stock #9297 - Brand new Koyo solid state CCTV camera model TVC-1000-2. Uses a 2/3" separate mesh vidicon type 8844 for clean, sharp pictures, electrical/mechanical focus, 10,000:1 ALC with better than 600 lines resolution. Electronically stabilized focus coil. White clipper circuit keeps the signal within standards regardless of scene variation. Camera mounting screws on both sides, top & bottom. Video Bandwidth 7mHz, video output signal 1.0V p-p composite 75 ohm load. Illumination sensitivity 2.0 ft. candles with Fl. 6 lens. Standard C mount for lens. Power consumption 20W @ 120VAC 60 cps. Dimensions: 5 1/2"W 3 3/16"H 10 3/4"D, wt. 7 lbs. Regular price of this camera is $256. less lens. A DEC Special only $179.95 less lens.
Stock #9298 - Above camera complete with 25mm Fl. 8 lens only $189.95

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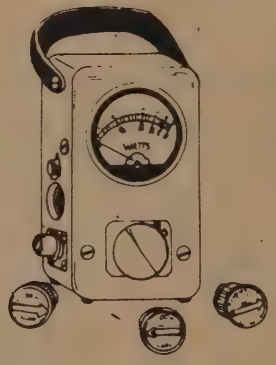

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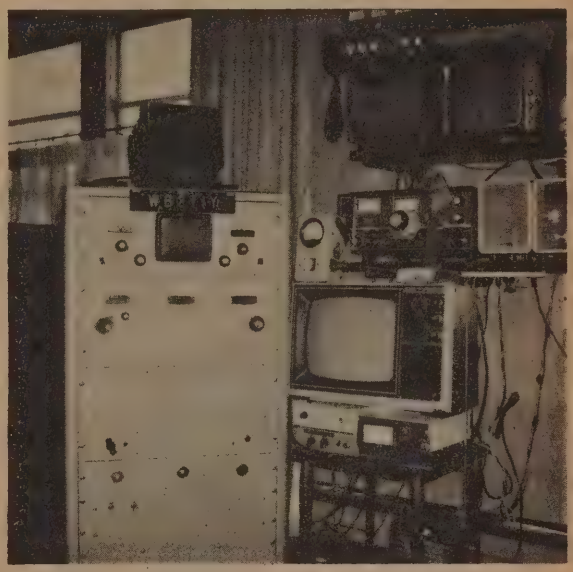
VERMONT SSTV is available thanks to N1FS Frank Somers who wrote to say that while he is busy in MARS SSTV nets, he is willing to sked QSO's for those who need VT for WAS SSTV. With a little help WB1 ALN Al Pierce might join Frank for VT SSTV. Frank was first licensed as 8CST in 1928.

Another ATV repeater, this one in Downey, CA built by Mike WA6SVT and Clyde WA6BAV. Input is 434 Mhz and output at 1241.25. Power is 20 watts with 40 watts in the works. The machine was used for Rose Parade coverage from a site on Mt. Wilson, with stations from San Diego, 100 miles away working through the 6000' high ATV RPT. They are presently awaiting a permanent site approval for the Mt. Wilson location.

From Denmark, " A little over a year ago I had the pleasant experience to visit the state of Kansas. Unfortunately only one week in Oletha, I still remember it as the best experience I ever had. I certainly hope to come back to the great USA. The interest in ATV is not great in Denmark, only a handfull of amateurs do some experimental work. My own equipment consists of 3 TV cameras, 4 monitors, 1 homebrew switcher/fader, 1 CQ-TV SPG, 1 flying spot scanner, 1 VTR, 1 WVFM monitor, 3 testpix generators, 1 SSTV sampler and monitor 1 P7 monitor, a modified FSTV camera and test generator for SSTV. And at last, a low power 70 cm ATV TX. Also some Heath and homebrew. 73 Gorm OZ6GH" Sounds like a lot more than a lot of US stations! Keep up the good work!



WA2YEI, Jim in NYC, has a fully equipped ATV station and TRS-80 and is looking for QSO's. Seems, LI had the bulk of operators Jim, so look over that way.

New ATV CLUB , AAA5, Arizona Amateurs on A5, contact Bill Munsil N7AOU, in Phoenix. Bill monitors 34/94 White Tanks. They have about a dozen in operation now and looking for more.

Everyonce in a while, we show some shack pix (whenever you send them in folks) So here is Bob WB2TIY's. 184 elements on ATV, a motorola T-44 top chassis, next 4CX250 B and PS, rest of ham shack. His QTH is a mobile home and he is set up in one corner of the living room. Bob says that ATV activity has dropped off in his area and is looking for new blood. Says the new folks are on Long Island, and running low power. Bob, meet Jim (above) get things moving again!

John W3HMS of Mechanicsburg writes to say that their ATV repeater should be up and running by Feb 1. The machine will serve central PA, and is on 70 cm input/output.

TELL YOUR FRIENDS ABOUT ATV MAGAZINE. SEND YOUR NEWS AND ARTICLES TO A
HAMS SHOULD BE SEEN AS WELL AS HEARD!

P.C. ELECTRONICS

FEB 80 CATALOG OF PC BOARDS AND MODULES FOR YOUR COMMUNICATIONS SYSTEM

Solid State Fast Scan ATV Modules

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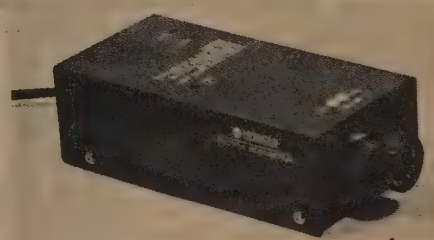
10 WATTS RMS. BUILT IN AC SUPPLY. STILL $399 DELIVERED VIA UPS IN USA.

ATV TRANSMITTER/CONVERTER—TC-1 $399.00 ppd
All you need in one box. Contains the TXA5-2, PA5, TVC-1, FMA5 modules described below in an attractive cabinet with regulated power supply and solid state T/R relay. Specify 434.0 or 439.25 mHz transmit and TV receiver channel 2 or 3. Connect to antenna terminals of any set, add a good 450 antenna, camera or computer and you are ready to show the shack, home moves, computer games, etc. 12-14 VDC and AC version add $30. On carrier audio . . . add $50. DM-1 INSTALLED...$30

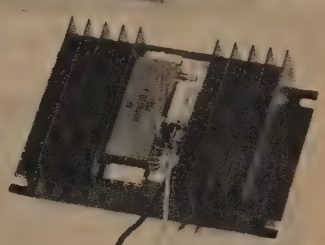


HITACHI HV-62 TV CAMERA . . . . . $239.00 ppd
High performance CCTV camera perfect for ATV applications. Resolution better than 500 lines. Low power consumption on 117 vac line . . . 7 watts and can be modified to run on 12 VDC for mobile and portable work. Small 4x2-5/8x8 inches. C mount lens included. 10,000:1 automatic light compensation. Built in gamma correction for high contrast. 12 to 18 VDC @ 230 ma and interlaced sync version . . . add $50.

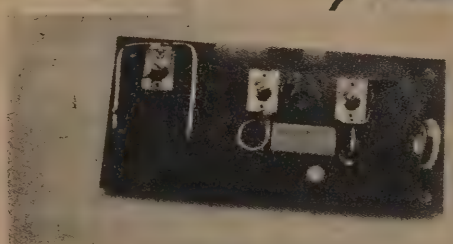
NEW!! TXA5-3 2 FREQ VERSION WITH XTALS.... 426.25 AND 439.25 OR 434.0...$115 PPD

TXA5-2 ATV EXCITER . . . . . $69.00 ppd
This is a wired and tested module designed to drive a Motorola MHW-710 power module to 10 watts output. (The MHW-710 is part of the PA5 module below.) The TXA5-2 consists of a crystal oscillator operating in the 100 mHz region to keep any harmonics out of two meters, two doublers and a final. The high resolution video modulator (8 mHz) drives both the final and 2nd doubler for good linearity. Also DC restoration is used to give max power on sync tips and black blacks regardless of picture average level. Requires +13.8VDC reg @ 70 ma, and crystal. (International type 473160 f/4) Tuned with xtal on 434,439.25, or 426.25 . . . add $15. CA-1 on carrier audio/18mHz osc module w/XTAL...$49 PPD

$225 PACKAGE TXA5-2 w/XTAL PA5 FMA5 TVC-1B



PA5 10 WATT ATV POWER MODULE . . . . $79.00 ppd
The PA5 will put out 10 watts of high resolution video when driven by the TXA5-2 Exciter or VHF ENG. TX-432B (attenuated down to 80mw). TXA5 modulation matches the PA5 gain curve to give good linearity for color reproduction.
Requires 12 to 14 vdc reg @ 3.0 amps and 80 mw drive.



TVC-1B ATV RECEIVING CONVERTER . . $49.50 ppd
Very sensitive MRF901 (1.7 db nf) preamp and double balanced mixer module digs out the weak ones but resists intermods and overload. Connects between antenna and TV set tuned to channel 2 or 3. Varicap tuning (420 to 450) allows remoting at antenna to save coax loss. Requires 10 to 18 vdc @ 20 ma. Super sensitive TVC-1C with NE64535 (.9 db nf) preamp . . . $79.50 ppd

FMA5 AUDIO SUBCARRIER GENERATOR . $25.00 ppd

Put audio on with your camera video. Connect your low Z (200 ohms) dynamic mic, +8 VDC reg @ 25 ma, TXA5-2 or any of the VM-1,2,3 modulators and you are set to show and tell. The FMA5 has lots of mic gain and a soft limiter for pick up to 25 feet. It modulates a 4.5 mHz VCO to the full TV standard deviation of 25 kHz. Works with any transmitter having 5 mHz video bandwidth modulation.

CU AT DAYTON?

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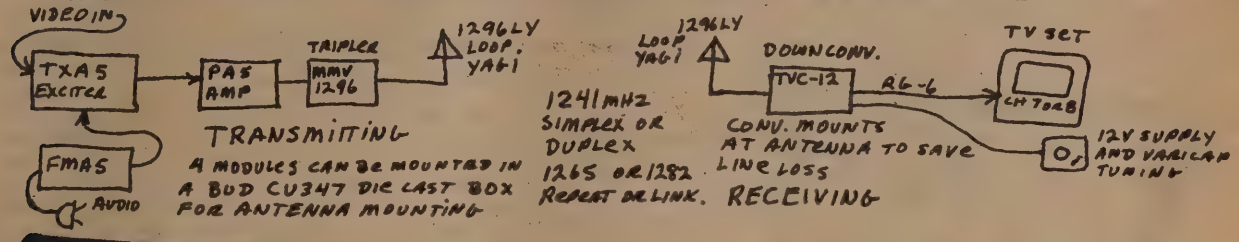
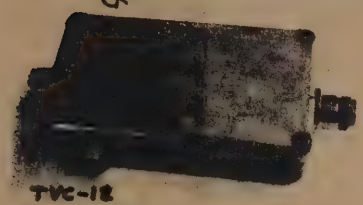
THE TIME FOR 1200 MHZ ATV IS HERE!

ASCII IS NOW LEGAL ON THE HAM BANDS AND DUPLEX BETWEEN 400 AND 1200 MHZ IS A NATURAL FOR COMPUTERS ON ATV. PUT THE ASCII TONES ON THE SUBCARRIER AND THE COMPUTER VIDEO IN THE SAME AS THE CAMERA. OR EVEN IF YOU ARE NOT INTO COMPUTERS, ITS GREAT TO SEE YOUR OWN VIDEO COMMING BACK AT YOU, OR NOT HAVE TO WAIT FOR THE LONG WINDED.

ITS AS EASY TO GET ON 1200 AS IT WAS TO GET ON 400 MHZ WITH JUST A FEW MODULES. WE HAVE ALL YOU NEED. REPEATER OWNERS MAY WANT TO USE 1200 TO LINK UP WITH ANOTHER REPEATER GROUP OR TO FURNISH A SECOND OUTPUT SO USERS CAN MONITOR THEIR OWN SIGNAL.





TVC-12 1200 MHZ ATV CONVERTER . . . . $79.00 ppd
Tunes 1215 to 1300 mHz from the shack. Can be mounted at antenna to save line loss. Outputs on channel 7 or 8. Req. 12vdc reg @ 20 ma and 10K pot. High rejection to 439 when used with SI loop yagi for full duplex ATV.

1296-LY 28 ELEMENT LOOP YAGI...18 DBD GAIN..If you run 10 watts on 439.25 it only takes 5 feet of antenna separation to have no interferance to 1265 mHz reception. FULL TWO WAY SIMULTANEOUS VIDEO IS HERE! If you have a 400 mHz inband repeater now add the 1265 xmtr at the repeater and the users only need the downconverter and antenna. ANT. 1296-LY...$58.70 plus UPS shipping.

MMV1296 VARACTOR TRIPLER....Good linearity and color video results when run at ½ power. 10 to 15 watts in gives 5 to 8 output. Used in crossband repeaters and at the Pasadena Rose Parade. approx 2x2x4" die cast box, BNCs....$99.95 + 2.50 shipping.

NEW TRS-80 TO TV CAMERA INTERFACE....CCI-1....$25 wired and tested
Superimposes TRS-80 letters on to TV camera video for titleing, etc. Requires a ext syncable camera such as the Hitachi HV62-S. HV62-S is available at $325.00 delivered.

NEW S-METER AND SQUELCH BOARD.....TSQ-1.....$4.00 ppd board only.
uses common Radio Shack parts and easy installation into TV set. Connects to video IF AGC and speaker leads.

420 TO 450 MHZ PREAMP.....P432VD.....$28.00 ppd
15 db gain, better than 1.8 db NF, BNC connectors, tuned input, uses MRF901 transistor, metal case. Makes barefoot UHF TV tuners sensitive. Made by Advanced Receiver Research.

CRYSTAL CONTROLLED ATV CONVERTER.....MMC432....$74.95+3.50 shipping
A stable low noise converter for repeaters, remote bases, or base stations. MRF901 preamp stages. Specify input freq and TV channel 2 or 3. Special freq. available.

VESTIGIAL SIDEBAND FILTER...PSF 438-ATV.....$92.95+3.50 shipping,
5.5 mHz BW. 80db down @-14 mHz. A must for repeaters & hill top.

INTERDIGITAL BANDPASS FILTER...PSF432.....$58.95+3.50 shipping.
Covers 420 to 450 mhz. .2db insertion loss but rejects 2 meters by 70 db. Keeps 2 meter FM out of the picture.

All prices are delivered in USA. All orders are check, money order, Master Charge, or Bankamericard. Allow 3 weeks after receipt of order for delivery. Charge card orders only by phone 5 to 6 PM your time: (213) 447-4565.

73, TOM W6ORG P.C. ELECTRONICS, 2522 PAXSON LANE, ARCADIA, CA 91006

COMPUTER TO TV CAMERA INTERFACE

Wouldnt it be nice to be able to put subtitles or computer graphics superimposed on the camera video? Well here is a simple little circuit that will do it. The Radio Shack TRS-80 micro-computer was chosen for the example only because it is the most popular machine at the time but with only 3 points to tap into it can be easily adapted to other computers or even rtty converters such as the Infotech.

The difficulty with tring to mix two video sources is that they must both be in sync. The horizontal frequency and phase must be the same. Commercial people do it by using one master sync gen and slaving all cameras to it. Actually any one video source can be made the master and the rest slaves by taping into the blanking pulses, buffering, and amplifing to 2 to 4 v peak to peak, negative going into a 75 ohm line. There are cameras that are designed to accept the external verticle and horizontal drive pulses and lock up on them. The one I use is the Hitachi HV-62 SU. These are a little more expensive due to the fact that they have to be able to free run if the external sync is lost. If not you could burn a line or hole in the vidicon target. The price of the HV-62-SU is about $300 compaired to a standard line locked verticle and free running horizontal synced HV-62U at $239. Even if you do not use the external sync feature you get 2:1 interlace for a little more horizontal resolution.

The 2½ x 3 inch board fits down in one of the two wells in the TRS-80 keyboard case. Wires are run about 12" long and soldered on the component side of the CPU board directly to the IC pins. +5 vdc and ground are taped in to components in the regulator section. You should be familiar with the disassembly of the case and not be afraid to violate the warrenty by going into the unit. Get a copy of Radio Shacks TRS-80 Micro Computer Technical Reference Handbook catalog number 26-2103 for $9.95. Its a good reference to see what is going on inside the machine. The board can be attached with foam with double sticky backed tape (Radio Shack 64-2344). So as not to have to drill or cut any holes in the case I ran some small RG 179 72 ohm coax thru the bottom vent slots in the bottom of the unit. (Belden 83264 or 9221). This coax is less than 1/10 of a inch in dia and fits nicely. The only problem is building up tape on the video out cable to fit into a PL259 to fit the transmitter or monitor. 3 of these coaxes just fit into the external sync plug that comes with the Hitachi HV-62-SU. Note that the TRS-80 operation and monitor are un-affected by this attachment. The combined video output is separate. Before buttoning back up the computer, adjust the drive pots to just above the point where they lock up, and adjust the white level (or black if u like but white showes up much better) of the computer letters.

TEST PROGRAM

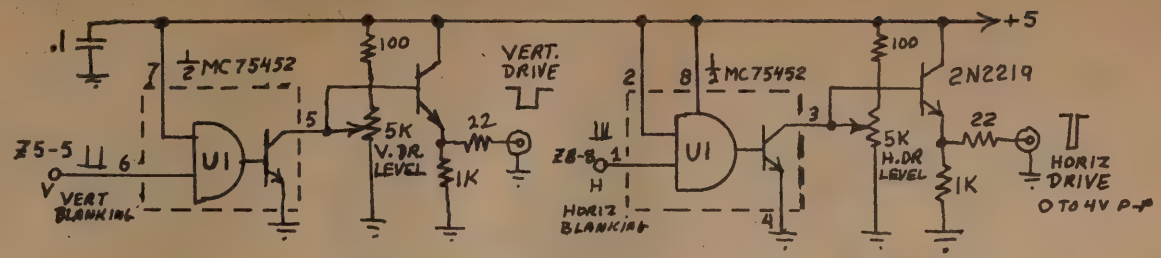
```
100 CLS
200 PRINT CHR$(23)
300 INPUT A$
400 FOR P = 1 TO 16
500 PRINT
600 NEXT P
700 PRINT A$
800 GOTO 300
```

Ill leve the applications to your imagination but the simple program at left will put two lines of what ever you type in at the bottom of the camera video in double size letters. How about a large letter CQ ATV scrolling over your camera looking at the shack? OR the camera looking at the model of the star ship Enterprise as u play Star Trek?

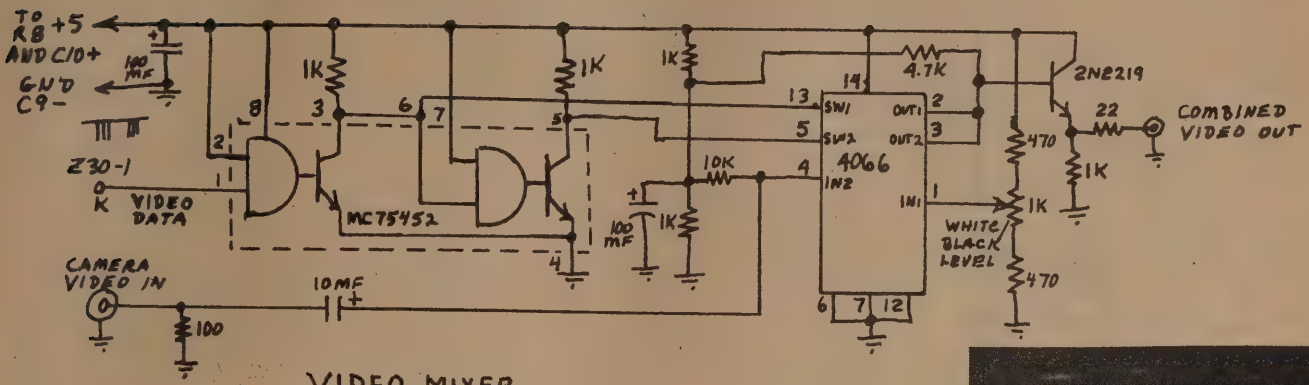
* PC Board and two MC 75452 ics.....$10.00 ppd
CCI-1 wired and tested module.....$25.00 ppd

DE TOM W6ORG 10/79

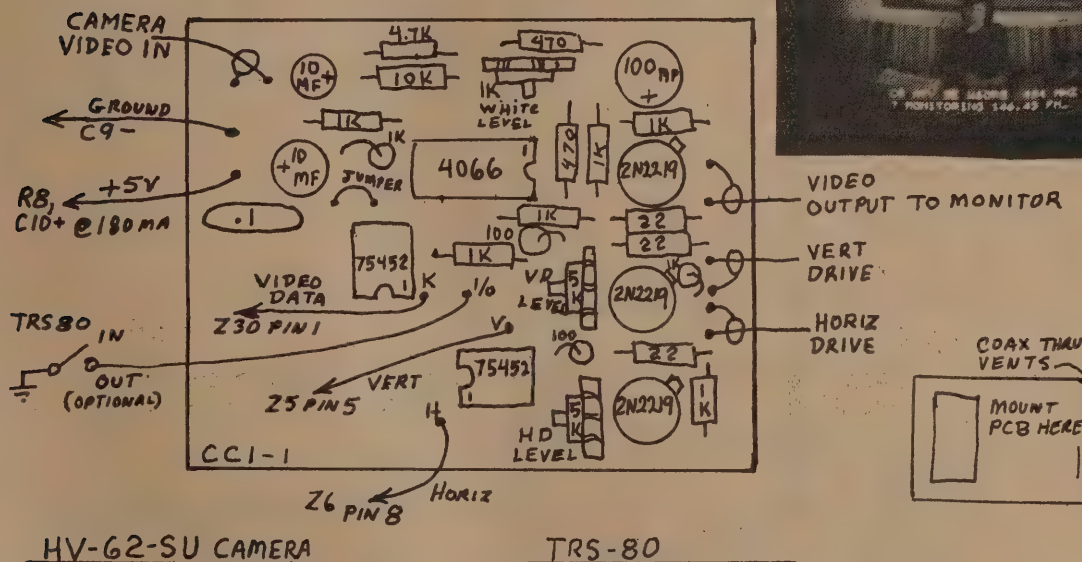
COMPUTER TO TV CAMERA INTERFACE cont.

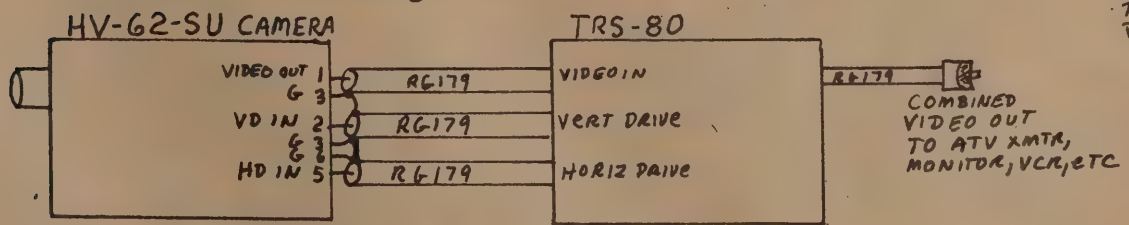


CAMERA SYNC DRIVERS



VIDEO MIXER

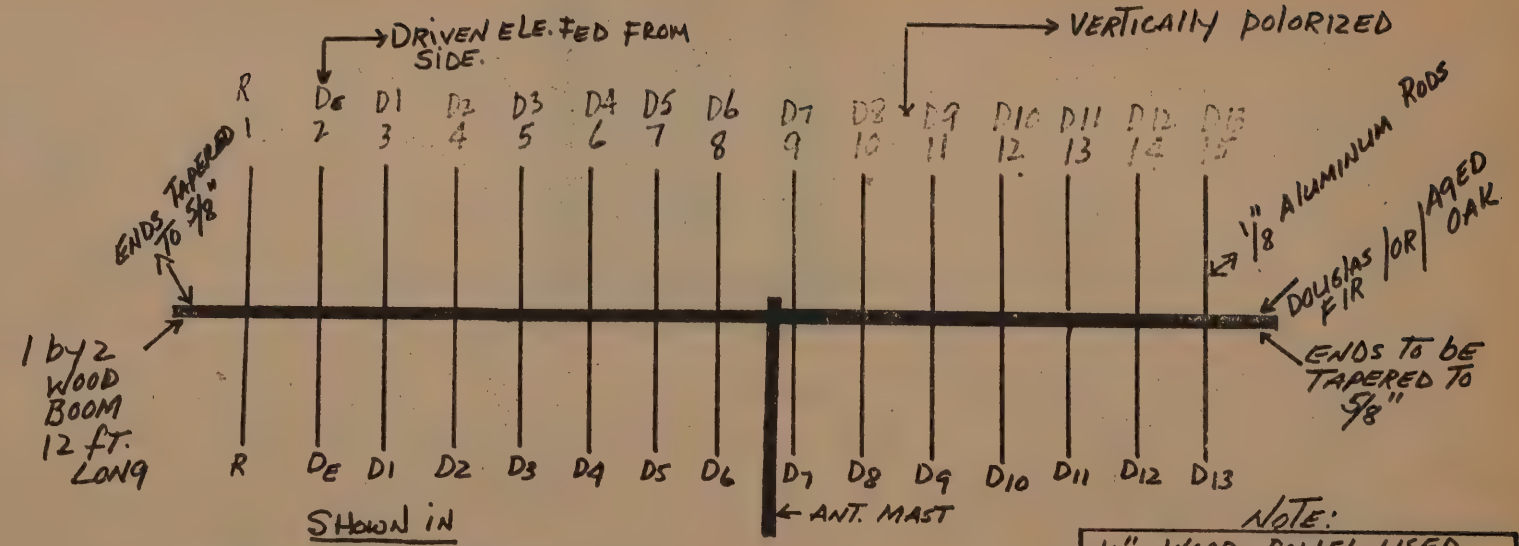




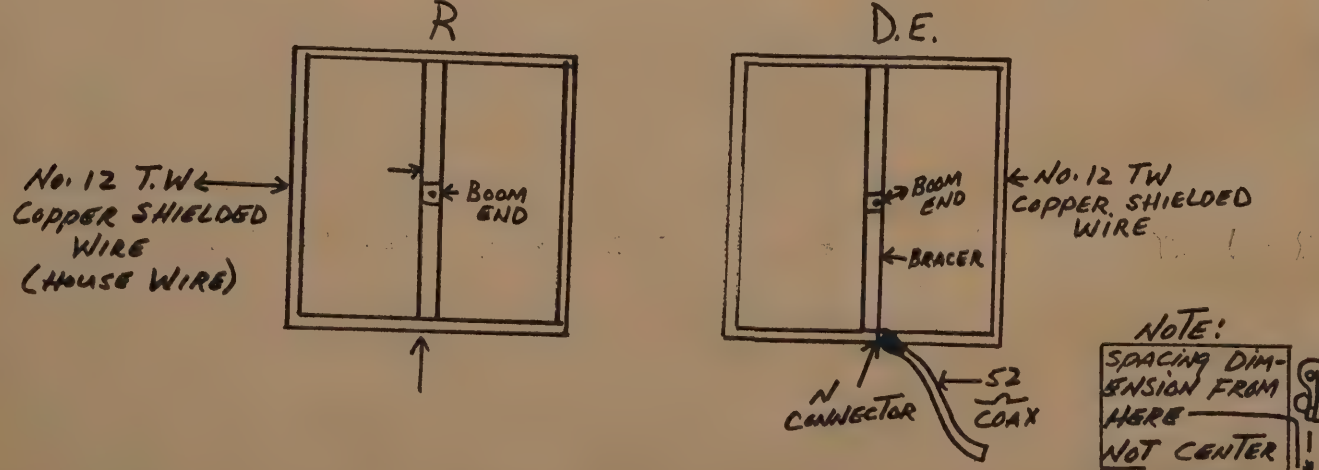
Caution: if u attempt to modify your camera for external sync, unplug the vidicon socket until you verify sync lock. If either or both drives are lost the vidicon will be damaged unless you put in a protection circuit.

Tom O'Hara W6ORG 2522 Paxson Lane Arcadia CA 91006 10/79
P. C. Electronics

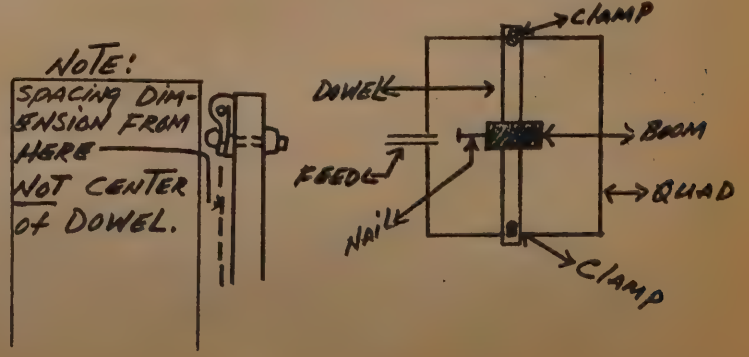
450 MHz 15 ELEMENT QUAGY by WA6MVD

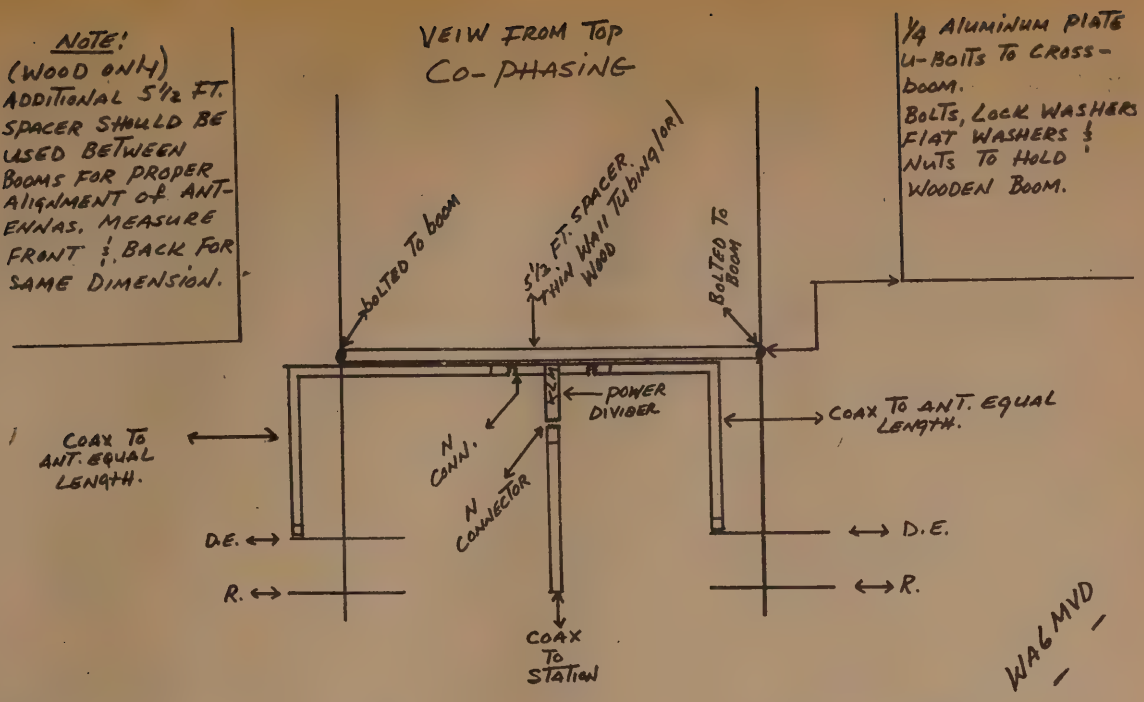


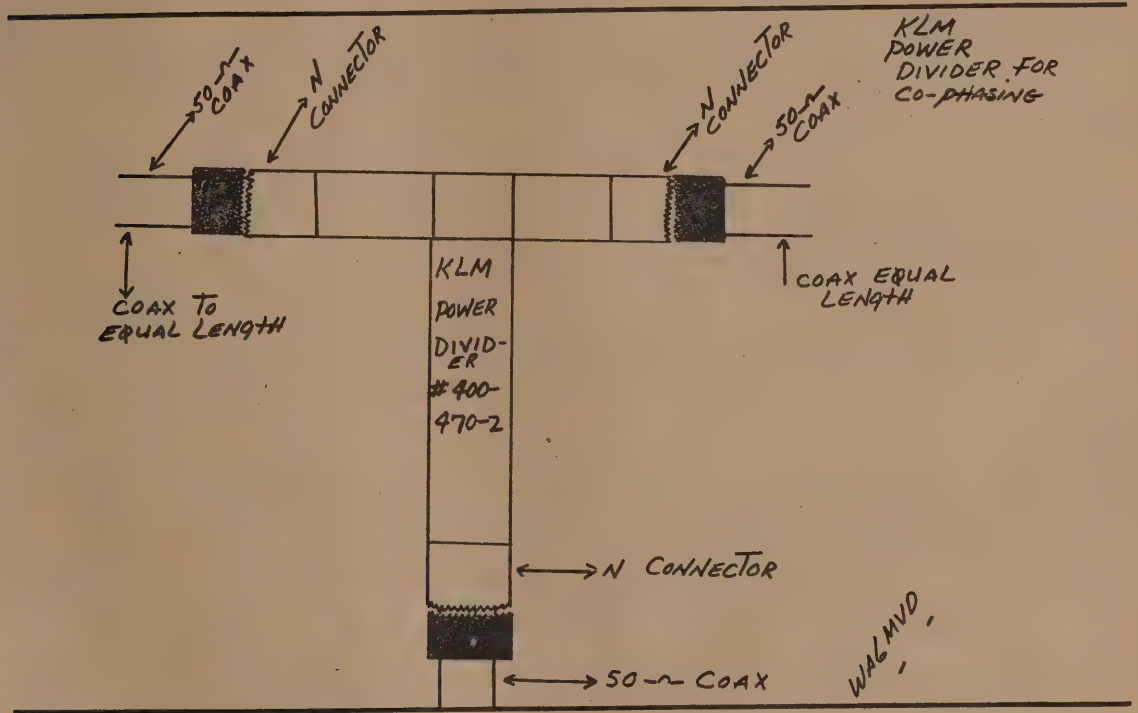
SHOWN IN HORIZONTAL POSITION

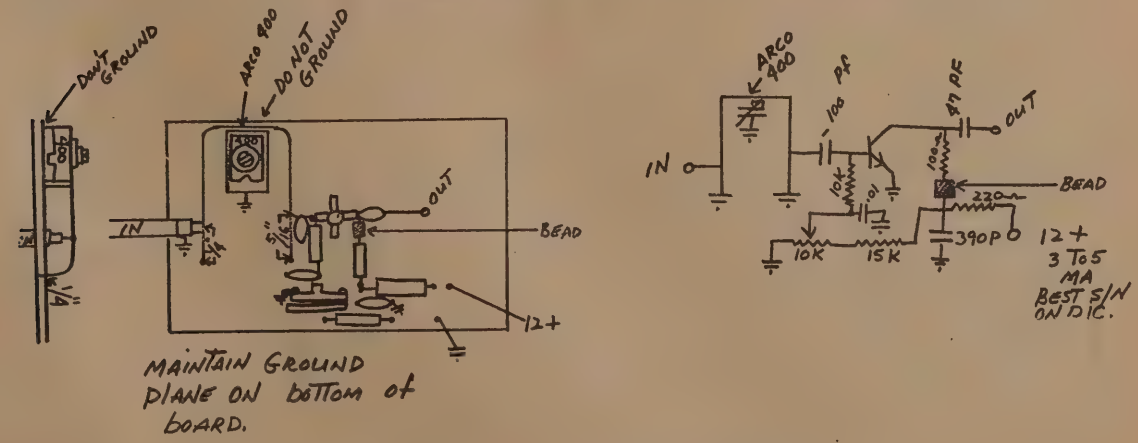


NOTE:
1/2" WOOD DOWEL USED THRU BOOM. INSTALLED VERTICALLY SAME AS D.E. AND 1/8" Nylon CLAMPS USED TO HOLD QUADS.
OFFSET HOLE FOR 1/2" DOWEL IN BOOM TO MAINTAIN CORRECT SPACING BETWEEN DIR., D.E., & REF.









901 PRE-AMP

MVD

SAVE ENERGY
SHOP BY MAIL

JUST ARRIVED!

SONY

Cat. #114
LATEST MODEL SONY TRINITRON TV "TOUCH-TIME" ASSEMBLY. Contains BRAND NEW (Mfg. 1979) UHF and VHF varactor tuners, 12 "LITE-TOUCH" push button assembly with 12 individual channel indicator lamps. 12 precision multi-turn preset potentiometers, with 12 slids selector switches (UHF, HI-VHF & LO-VHF). P.C. board with 5 transistors, 1-FET and a Zener diode regulator for the tuning voltages. UHF/VHF antenna input assembly w/300ohms to 72 ohm balun. Supplied complete with interconnecting cables & schematic. Great for remote control, ATV, Decoders, etc. Dealers net from Sony is $80.00 — Our price, only $39.95.

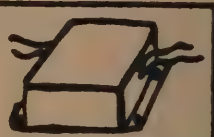
Cat. #115
ALIGNMENT TOOL. Hard to find double-ended, 2 Different sized ceramic blades with ½" handle & metal pocket clip. Used by manufacturer's to align those mini & sub-mini RF & IF coils that no other tools seem to fit. Only $1.25 each. 2 for $2.25.

Cat. #116
HI-GAIN REMOTE CONTROL SRKR/MICROPHONE, with all control functions, L.E.D. channel indicators, PLUS a complete built-in National Semiconductor 12 volt D.C. DIGITAL CLOCK with Xtal time base & divider chip. Brand new w/plug & cable. All for only $9.95.

Cat. #117
AMP CRIMP (SOLDERLESS) CONNECTOR KIT. Contains one each PL-259, Type "N" and BNC. All males, to fit RG-58U co-ax. Kit of 3, only $2.95.

Cat. #118
RUBBER DUCKY ANT. 7" long with ½", 6 x 32 threaded mounting stud. Only $4.94.

Cat. #119
POWER (RFI) LINE FILTER. Heavy duty 10A.RMS. New, pulled from unused computer power supplies. Sealed metal case w/mtg. flanges, 3" X 2-¾" X 2. Lopass filter, Approx. 90 DB attenuation at 100 KHZ. Helps reduce RFI from computers, motors, transmitters, etc. Only $4.95



MOTOROLA

Cat. #120
UHF/VHF PIN & TUNING VARACTOR DIODE KIT. Contains 3 each, Motorola diodes;

A. MPN-3401 VHF pin diodes for band switching & attenuator circuits. (o.34 ohms @ 10 MA @ 100 MHZ)
B. MV-2101 VHF voltage-variable cap. diodes. To-92 case (2 leads), high Q (450 min. @ 50 MHZ), tuning ratio typ. 2.7, nom. cap. @ 4 V. = 6.8pf.
C. MV-2111 VHF Voltage-variable cap. diodes. To 92 case (2 leads), Q=150 min. @ 50 MHZ, tuning ratio typ. 3.0, nom. cap. @ 4V.=47pf.

These Varactor diodes are used for FM Radio & TV tuning & AFC, etc. Kit of 9 diodes w/data, Only $4.95

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CQ SSTV DE K4TWJ

DAVE INGRAM

Contributing Editor
Amateur Television Magazine

Eastwood Village No. 1201 South
Rt. 11 Box 499
Birmingham, AL 35210

A NEW YEAR

The prospects for 1980 look extremely favorable for many amateur radio frontiers. Meaningful applications and worldwide acceptance of SSTV is growing at a phenomenal rate, and some fresh results of these efforts should be realized during the year. The rising popularity of ATV repeaters and microwave communication will also kindle renewed interest among many amateurs, and commercial tv satellite reception with home terminals should emerge from underground cloakings. At least two national distributors are gearing up to supply such items for under 400 dollars. The upcoming launch of the OSCAR Phase III long range satellite will open heretofore unknown international communications possibilities, and SSTVers willing to share this new asset with all amateurs should find satellite communications very exciting. Medium Scan TV now has a firm foothold on the high end of 10 meters, and that mode is also destined to flourish during 1980. All aspects considered, this year should prove far superior to the rather "down" months called 1979.

INSPIRATION, INSPIRATION

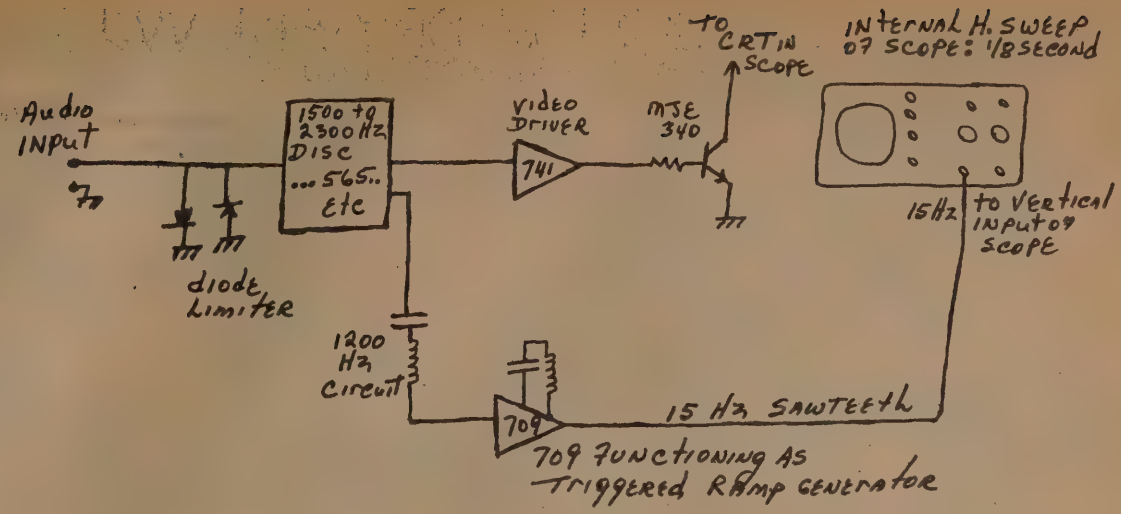
The wide array of SSTV awards being offered by A5 Magazine should prove an inspiring challenge to Slow Scan operators everywhere...particularly those with blank wall areas open for new colors. There are several awards available ranging from minimum difficulty to the tough-to-acquire Master Scanner award. Full details concerning these awards are listed elsewhere in this A5 issue.

If you've accomplished a noteworthy purpose or performed a special task involving the use of SSTV, that too is worthy of recognition. Remember to inform us at A5 so we can add your activities into the ring for the annual "Good Image" award. 1980 can become one of your most outstanding years, but you can't expect results sitting on your hands. You must let your actions be known.

If you haven't tried SSTV (yet!), or if you know someone thinking of getting into Slow Scan, periodical columns such as this A5 series, my SSTV Scene which ran in 73 Magazine during 1972 to 1975, Bill DeWitt's SSTV columns in CQ Magazine (approximately 1977 and 1978) can provide some good "starting points" worth reviewing. Full blown SSTV articles are always beneficial, but they often lack simple-yet-effective ideas and approaches which are passed along via such columns. Finally, remember to check with local area enthusiasts during those early times of new mode investigation. It's often quite surprising to find amateurs sitting quietly on truly grand methods of operating such modes.....and their techniques or schematics are only passed on via personal discussions or visits. Knowledge does, indeed, turn up in the most unsuspecting places.

10 IS TOPS

Saying present conditions on 10 meters are great is a definite understatement. Propagation is, indeed, like nothing realized for many moons. If you want to get into some super SSTVing at the mere exciter level (plus plenty of SSTV DX activity), 28,680 kHz is the place to be. Recent news from Mike Stone, WBØQCD, truly substantiates that fact. Mike's 10 meter SSTV QSO's now tally between 400 and 500 - and that's since a "starting date" of June, 1979! Mike recently worked ZS6BQT in South Africa and HL9TW is Korea, so there's tangible evidence you can score high on 10 right now. There's no need to fight the mobs and high powers of 20 meters at this time....although later evening gatherings around 14,230 kHz are still enjoyable after 10 "folds".



General outline of "less than 20 dollar" SSTV Receiving Arrangement Aimed at getting NON-video Amateurs into Slow Scan TV.

It's quite interesting to note the number of SSTVers that are also into RTTY, and vice-versa. Could this be a spin-off of interest in "specialized modes" or could this result from the mere challenges of attempting similar audio related concepts? That's a ticklish area, but maybe we'll be able to offer an expanded insight soon. Yes, as an influence from SSTVers like WBØQCD, K6AEP and W4RKS, I too have begun investigating RTTY. As a form of nostalgic venture, however, I've chosen the ole mechanical ways (model 26 and 28ASR teletypes) rather than modern microprocessor systems. The "days of the clunkers" seem to be drawing night, so it's a now-or-never situation which can't be overlooked. I fail to see, however, how any mode could ever replace the fascinating mode of video communications. There's still an unsurpassed pleasure in visual exchanges, right?

NEEDED: AN EASIER WAY

We're all aware there are thousands of amateurs around the world anxious to try SSTV - or at least get some super simple viewing system going on Slow Scan. The group I'm describing are those unable or (at this point) unwilling to invest in a digital scan converter. If you're trying to set up a "something for nothing" monitor for your local club or a friend, you might also be included in this group. What's needed is an overnight SSTV converter costing less than 20 dollars. Anyone tackling that challenge stands a good chance of becoming an overnight hero. I started trying to assemble some thoughts along that line to illustrate the point. The Figure is shown in this column.

Basically, an oscilliscope (hopefully one pre-equipped with a P7 C R T - I "kidnapped one of our school's Tektronix I'm using for this purpose) is laid on its side and internally swept at the SSTV vertical rate. The lack of vertical sync is then compensated manually (poor, I know, I know). Horizontal sawteeth, generated by a single IC and synced by incoming 1200 Hz pulses then sweep the scope in a horizontal direction. A basic FM discriminator converts 1500 to 2300 Hz shifts into C R T modulating voltages, which are amplified to the required level. I'm still thinking about this: It seems a PLL like the 565 could produce enough output to drive a MJE340 or similarly inexpensive (less than 1 dollar) power transistor. That's the general idea, however. Build a simpler mousetrap and catch a vulnerable group of amateurs who will continue along their way to "full blown" video activities. Now, who's going to carry the thought a few steps further and develop the idea into a working system?

CLOSING THOUGHTS

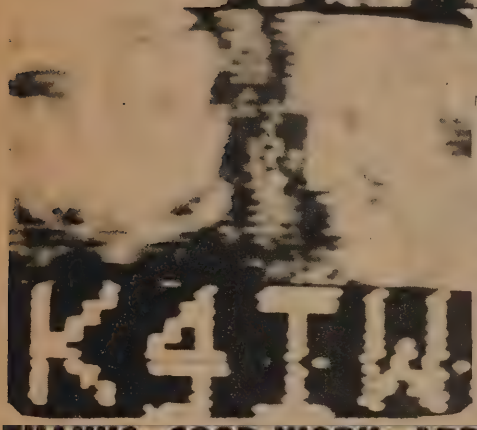
That wraps up the news for this time gang, and we're standing by for your inputs. Remember to let us know of your "happenings", ok?

You DXers might be interested in hearing that VU2IJ, Jimmy and AP2AD, Ahmed have been active on 20 meters around 0230 GMT - both are SSTVers and several VK SSTVers gather around 21,260 kHz evenings around 0130 GMT.

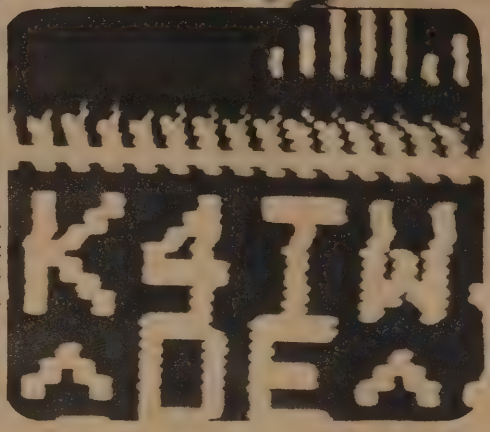
Henry's words in the January-February issue of A5 concerning use of NWS weather radio pictures being converted to SSTV were really inspiring. Anyone moving on this idea yet? 73 'til next time. Dave Ingram, K4TWJ, Eastwood Village #1201 South, Rt. 11 Box 499, Birmingham, AL 35210.

SSTV newcomer ABOT gives a friendly wave the 14,230KHZ gang during a recent session of the saturday net. Were you on frequency at that time? Did you move off frequency soon thereafter and also work 4x4VB on SSTV?

As we said in this issue's text, 10 meter conditions are great. This Santa picture was received on 28,680KHZ from G4DFU He was running low power but his views were closed circuit quality.



Clay, K6AEP, again at his computer-based antics The left picture was rotated in 90 degree steps while the bottom lettering was inserted from an extra 16K memory. We snapped this view when the left picture was upside down. Pixel count of each picture is 128 by 64 by 16 grey levels.



Another K6AEP exclusive is this cistograph of grey level content of an SSTV picture used or diagnostics. Clay's computer counts Pixel contents and displays them as left being black while white is right. The vertical bars then indicate pixel quanities for these values. View shown here indicates large amount of grey level energy with less amount of black level energy.

THANKS, GOOD WORK, ARRL

WARC, THIS, THAT AND THE OTHER THINGS WHICH ARE INTERESTING

WARC in a phrase, we win, everybody else loses. Our gains are 10.1-10.15, 50 Khz which would make a nice Advanced/Extra, SSTV, FAX, RTTY only band! 18.068-18.168, 100 Khz which would make another nice SSTV and other non CW-SSB modes band. 24.890-24.990, which would make a nice CW SSB only band. On 450, The US didn't shave off any, but it lost 1/3-2/3 everywhere else. BUT, A NEW 902-928 MHZ band would make a nice spot for ATV repeater outputs. Canada is apparently already changing their regulations to drop 420-430, but subbing the new band. At 1215-1240, we got axed, but still have 1240-1300 which is enough room for now. The big surpise was that there were no changes in and allocations of 80-10, and some gain in exclusivity in 160. Our negotiaters worked overtime for that folks!! All in all, we faired much better than I had expected which, needless to say, makes me very happy. My only regret is the loss of our UHF band space, which seriously affects ATV, but hopefully, we can get some action on 902-928 and carve out a slot or two for ATV there which won't suffer from satellite intrusion.

W2HD, Harry Dannals, ARRL President, was at the Oct 79 Cedar Rapids convention and was spotted infront of the ATV booth, operated by WBØQCD W9FHB, WDØAYT, WBØFHB and WB9UCW. The booth had active fast and slow scan equipment in operation. Mike sent a picture of Harry in front of the booth, promoting ATV, asked that I note lose it, but I don't see it as I type this out, gotta find it yet, if I do, it'll be printed in this issue somewhere!

SCATV dropped anote to say that clubs who want good custom badges, with logo's etc, can get a good deal from Fallert's Engraving, 121 N. C. St., Hamilton, OH 45013. Send for price list.

Alll solid state color cameras comming soon, acording to Matsushita, which is now planning to market a new one which has no image tubes, but uses a special color image IC. Camera is only 10 x 11.5 x 5 cm, weighs 1.2 kg with a 6X zoom! Camera will have 470 x 375 pixel image, standard NTSC 525/60 output, and sells for $4000. Tnx WD6ARQ

Last year's March ARCH was such a success (A5 was there) that the new date is MAY24, 25. The convention, Central-midwest ARRL, Amateur Radio-Computer Hobbyist, will have superb facilities and features including a river boat cruise, dinner, dancing, excellent flea and exhibit areas (indoors) lots of parking, and if its half as good as last year, its still as good as Dayton! But without the crush as the St. Louis convention hall is a lot bigger and the traffic flow is better! Info...PO Box 26, Marissa, IL 62257. $3 advance, $4 door.

Next issue goodies, a look at K6AEP's computer SSTV system. Microwave projects from W3AED and our usual assortment of good suprises. Did this fantastic issue! Everytime I think we have outdone ourselves and have come up with a great issue, which can't be topped, well, sure enough, a few issues down the ribbon and whammo.....another blowout of the bank account. I don't know how we would ever top this issue, but as in the past, we probably will. ATV Magazine keeps getting bigger and better!

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Interlace	*Full 1:2*
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Output	*Standard Composite Video*
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Sync Type	*Negative*
Power Supply	*18vdc included*
Power Consumption	*Low 350 ma at 18vdc*
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Mount	*Standard 1/8" tripod socket*
	Pistol Grip Included
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Packaging	*Contoured, foam filled ship carton*
	12 page service manual included

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"LIGHTS, CAMERA, ACTION!"

Guidelines for SSTV Video-Artwork

by WBØQCD

Having always been fascinated by "rtty-art"; its' makeup, print techniques and on-the-air reception, it was logical to become highly interested in SSTV-ART after one day of on-the-air operation. SSTV-ART is indeed even more fascinating when you ponder that one picture or one painted frame contains 128 lines, 128 dots along each line totaling 16,384 bits of video information. Unlike rtty-art that can take literally hours to run, SSTV-ART is accomplished in eight seconds. Todays excellent microprocessor technology along with years of experimentation by the "pioneers" of Amateur ATV ensure transmitted and received SSTV pictures to be of the best quality using digital-computerized grey scale shading. The finished result is clear photo like reproductions. Assuming that the reader already pocesses the proper equipment for SSTV-ART (converter, camera, recorder and monitor), the following are suggested guidelines for successful pictures via Slow-Scan Television.

LIGHTING Not enough can ever be said about having the proper amount of light on the subject be photographed. While being the most crucial tool in obtaining good results in SSTV work, it can also be the most frustrating. Areas with lots of sunlight in the room can sometimes be sufficient for lighting if a good quality camera and lens opening combination is utilized. The local hardware or camera store offers portable, adjustable clamp-on floodlight type lighting systems for $4 to $6.00. Two and sometimes even three of these systems will be needed to rid the subject matter of unwanted shadows caused by the light angles themselves. In most cases, 75-100 watt bulbs work best in these fixtures. Flouresant lighting is fair at best for soft lighting techniques unless many bulbs are used. It is quickly realized that coordination between lighting, camera lens, converter contrast and brightness controls must be blended for a proper picture to be captured.

BACKGROUND As important, and related to correct lighting techniques, the chosen background used for a picture is also important. "light" colored backgrounds tend to capture the brightness availability and enhance the surroundings of the subject. It can, however, also impair the subject matter and other backgrounds will have to be experimented with. The color red provides a soft background in many pictures and yet does not contribute to any portion of the grey-scales. Dark colors such as "black" can be used effectively for boardering. A special corner in the "shack" or part of a wall can be used for the "studio". With good lighting and background, the only necessary ingredient left is the "subject matter".

SUBJECT MATTER Almost anything you can imagine is SSTV photographical. The items used are only limited by the operators imagination. Old photographs of family pictures or slides of that recent vacation are commonly used on the ATV circuits. TV "star" books or "Hollywood picture manuals", movie advertising prints, yearbooks and servicemens cruisebooks work well for the SSTV camera. Childrens' lunchpails, books, clothing and coloring books provide some of the best "cartoon" material. Christmas greeting cards and other holiday material makes timely matter for transmission. Postcards, QSLs', schematics, and magazine photographs offer unlimited varieties of material. Extraction of video from the video amplifier sections of portable TV's is possible and achieves unique results! With the price of Video tape recorders coming down, many can use that as a means of TV program capture and photographing. Dont forget such

GM4BVU Norrie, will be in the Boston area in June and wants to meet area STV'ers and see the K1VTE ATV RPT in action. If anyone can assist Norrie,, please write (airmail), or drop a note to A5 and we will pass info along. QTH, 3, Townhill Rd., Earnook Estate, Hamilton, Strathclyde, Scotland, ML3 9UX.

things as dolls, pipes, electronic tubes, circuit boards, stamps, photos of ham gear, meters, food items and other material possesions. American and foreign money currency is always popular items in SSTV-ART. When closeup--lens and filters are used on currency, unique special effects can be produced taking closeup snatches. It is simply amaz--ing the techniques that can be accomplished on serious close-up work on highlighted detail. Visit your local newstand or magazine supply store for SSTV material and dont' overlook---the local library! One very interesting technique is to take a 12 or 24 hour clock with dark numbers and "hands" and mount on the wall where the camera can focus properly. Quick snatches of the "clock" in between card-change or picture shots not only provides the receiving station to get the time-of-day, but he will be able to see8 second advancement of the second hand providing almost REAL-TIME viewing. SSTV and computer keyboards are playing a big part in "graphic" artwork and letter messages. Stick-on letters also work well.

HELPFUL HINTS Menu boards like that of W8YEK or a roll of your buddies teletype paper mounted and pul-led down as need can provide a very handy surface for "written" messages such as call-name-QTH-etc. A roll of paper costs at hamfests about 75¢ to $1.00 and becomes very economical to use (the kids like it to scribble and draw on when your done!). Felt tip markers (the wider the better) are commonly used in artwork or message sending. An extra large felt-tip marker found in most "hobby and craft" stores is the NIJI" marker with a 3/8 inch tip from Yasutome Co. The retail is around $2,50 but lasts for months. W7AMQ advises that colored-transparent pieces of plastic work excellently for "filters" such as when "Santa Claus's" red suit doesnt come out well. With the filter held over the lens of the camera, his clothing comes out light grey. It is enjoyable to see almost REAL-TIME photographing of the sending SSTV operator as he or she draws the picture or prints out the lettered message. On the ROBOT 400 model simply leave the MEMORY INPUT switch to CONTINUE and the TRANSMIT SELECT switch to CAMERA and you will send out a live picture ever few seconds. A captured "thumbs-up" photograph of the senders hand always means "closed-circuit copy". Where RST is used on other modes, RSV can be used for ATV work. WB6ZYE wrote a fine article in March/April issue of A5 Magazine on SSTV SIGNAL REPORTING utilizing the RS code as normally understood with the "V" code meaning: V1-mostly unreadable-loses sync-picture interupted. V-2 read-able pictures with multipath and interference. V-3-good pictures with interference. V-4-good pictures with multipath. and V-5-closed circuit quality picture. Some very interesting results and loads of fun can be accomplished using mirrors. Can you imag-ine the puzzlement on the receiving operators face when he sees a picture of you be-hind the camera? Recent WA7WOD/WA4OAA ROBOT 400 conversions have enabled the special effects method of split pictures---and photo multiplication. Write WA7WOD for details. Hard--copy of SSTV-ART is possible with regular photographic equip ment and perhaps viewing hoods. K6AEP even has his SWTP-6800 system capable of snatching any SSTV picture and "hard-copy"-onto a rtty printer.

It is adviseable not to run long series of frames which will-discourage the stations monitoring from jumping in or getting a chance. Also prolonged SSTV emissions not being heard in other areas invites CQers or other non-ATV operators to use the frequency. Ten meter SSTV seems to be the best bet for Closed-Circuit copy. 28.680 Mhz. is the primary operating frequency with 29.180 as a secondary frequency.

The best book to buy for the serious SSTVer is THE COMPLETE HANDBOOK OF SLOW SCAN TELEVISION by K4TWJ, Dave Ingram. The book is published by TAB BOOKS, Blue Ridge Summit, PA. 17214 (717-794-2191) and tell them you want book #859. The cost of the manual is $9.95 and it is in thick paper-back form.

ARRL 1981 Handbook, ARRL wants a section on FSTV. Anyone who can provide material is asked to contact Don Miller, W9NTP, Box 95, Waldron, IN 46182, or A5 for details. Here is your chance!

Slow Scan TV

by Mike Stone, WBØQCD)

* ROBOT '400' SSTV CONVERTER MOD *
* FOR 256 LINE* RECEIVE/TRANSMIT *

General discussion

*The term "256" used on SSTV circuits is very often misused by misunderstanding operators. "256" in REAL TIME means 256 lines by 256 pixels in one 32 second per picture frame. The ROBOT '300', or P-7 systems, did indeed have REAL "256" capability. But, the ROBOT '400' digital-series converters can only at best (with conversion) send 128 lines by 128 pixels and is translated to 256 by an interlace system. In receiving REAL 256, you pick up every fourth bit (byte) of information in the digital process by running the clock circuit at 1/4 frequency. The modifications shown below will get most of the 256 picture, but not all. This modification is for 1/2 speed 128 format. The line time is the same as 128 at 8 seconds but doubling the time to 16-18 seconds to send a slower picture does not reproduce REAL 256. The so-called "256" term used on-the-air is still 128 pixels and is incorrectly being promoted as REAL 256. It is really 128 sent at half speed. Now that we have you totally confused, lets continue on with the article!

Advantages of this ROBOT modification (128 at 1/2 speed)

'256' transmission in SSTV mode is far from being anything new. Earlier equipment did indeed have capability for 256 line transmissions. WB4HCV's November 1978 article modification detailed the same basic conversion as shown below-using a switching network between two IC chips. This conversion is much simpler and does not involve interconnection to digital components except for STEP-2. The "mod" allows 128 at 1/2 speed and 64 line "minipix".

This modification offers two basic advantages; 1-longer frame time and slowing of each 128 lines of information provides a better "QRM" or "QRN" copy of the finished product. A brief burst of static, unwanted voice modulation or carrier-tuner upper will wipe out a major portion of an 8 second frame. The same interference will perhaps not even be noticable or at a much less degree of destruction on a 16 second frame. 2-this modification allows the operator a multiple of "special effects artwork" including split-photo and dual-stacking techniques. The complete modification consists of two separate steps and is relatively simple with no special tools needed.

STEP-1 RECEIVE/TRANSMIT 128 line 1/2 speed
by WA7WOD and WA4OAA (OCT 79)

To receive 1/2 speed transmissions, install a 5-10k pot in line with the factory "width" control pot located on the front panel of the '400' converter. The new pot may be soldered directly to the terminals of the width-control pot for additional support or elsewhere for external mounting. Remove the little blue and white striped wire from the topmost width control pot arm and insert the new pot in line. The blue/white wire goes to the common portion of a DPDT toggle switch. Arrange the new pot so you can adjust the pot for alignment while watching the monitor TV. If outside, external mounting is desired see note (1). A pair of wires from the two positions of the DPDT switch go to each side of the new pot. With the '400' factory width control pot set for normal 60 hz. signal reception, adjust the new pot while in '64' position for exactly two duplicate frames (see note (2). The switch now gives '64 & 128 line receive capability. If a station sends a regular 128 line picture with the switch in 128 position-a normal frame is painted. With the switch in 64 position, two duplicate pictures-smaller and side by side is painted. A combined picture of the first

NEXT ISSUE: Australia's ATV RPT system. Full details, also Video Switcher using IC's. New, SSTV Award program. SSTV Contest.

frame is in 128 position and the second frame (same or different picture) while in 64 position achives unique results. Additionally, a 16 second-128 picture sent will paint a full-frame with the switch in 64 position or "QRM" mode.

To transmit out (128 at 1/2 speed), (full frame-single picture) using the remaining connectors of the DPDT switch for breaking the CAMERA circuit line or turning off the AC to the CCTV camera used or disconnecting of the plug, freeze a 128 frame picture (or any 64' line picture received) by the usual MEMORY INPUT "HOLD" position and with the DISPLAY switch to CAMERA position you will notice that the CCTV monitor goes blank and eractic. With the usual output of video signal activated by the MEMORY position of TRANSMIT SELECT, the picture stored in memory goes out at twice the normal rate of scan or about 18 seconds. The operator can tell when the frame has completed or cycled by watching for the blinking that occurs on the screen after the grey scale. Receivers with "monitor" circuits of sampled RF ouput may also be used. Note that only one frame-picture may be sent at a time unlike continuous taped programs.

STEP-2 DOUBLE PICTURE (128) DUAL-STACKING MODIFICATIONS--4 PICTURES IN 1 FRAME ETC.

With STEP-1 conversion made, you will notice that on a 128 line picture sent with the switch in '64 line mode position, you will get two small duplicate photos in the first half of the full frame. (64 lines 64 pixels by 64 line 64 pixels with 16 pixel boarder.)

To receive two small pictures in the first half and two additional small pictures in the second half (totalling four) (see note 2)-the SYNC pulse reset circuit must be bypassed. Carefully removing U14 IC chip from its socket base, bend pin 6 outward and replace the chip in its socket so that pin 6 does not go into its alloted space. Solder a coated wire (see note 3) from the pin arm to a switch or as recommended in the drawing to an open spot on the '400' mother boards edge-connector. Removal of the edge-connector screws might have to be made to get at the back side of the female pins to run wires to the switch. A 2nd coated wire will have to be run to the switch (via the edge connector) from the corresponding bottom side of pin 6 socket. Using a "pushbutton" on/off type switch to make and break the pin 6 connection, in the "break" position a 128' mode picture received will continue down into the frame creating four small pictures. The ROBOTS automatic resyncing circuitry will force the sync at the bottom grey scale to begin repaint from the top of the screen. If carefully monitored and controlled, it is possible to catch two small pictures from one frame sent and two small pictures from a different frame received. Dont forget the position of the SYNC break switch when viewing normal 128 mode photos. Use the MEMORY "HOLD" position to freeze wanted picture results. While in "HOLD" memory storage, output immediately goes back to 128 line format. (Experimentation will allow top picture reprocessing)

NOTES, HELPFUL HINTS AND ARTWORK COMBINATIONS

(1) If the drilling of holes on the front or bottom of the cabinet is not desired for the mounting of switches and pots, they can be mounted externally using longer wiring and if necessary male/female jacks for easy separation. Mounting of phono jacks on the rear cabinet cannot be utilized unless kept above ground.

(2) Addition of a 1 mfd. capacitor as detailed in the drawing from the new pot will allow more than two pictures across the screen (minimum 3). An additional switching network would allow the operator to choose 2 or more multiplied pictures by bringing in and out the 1 mfd. capacitor to the 5-10k pot.

(3) Be very careful to properly "heatsink" the pin 6 arm while soldering so as to not harm the chip component itself.

PC Electronics has a modification for the 4.5 Mhz subcarrier module to allow high level (-20 DBm) audio levels, ie from a computer (ASCII IS LEGAL NOW!) to directly modulate the sound subcarrier. Now you can send COMPUTER VIDEO and your COMPUTER DATA/PROGRAM on ATV at the SAME TIME!

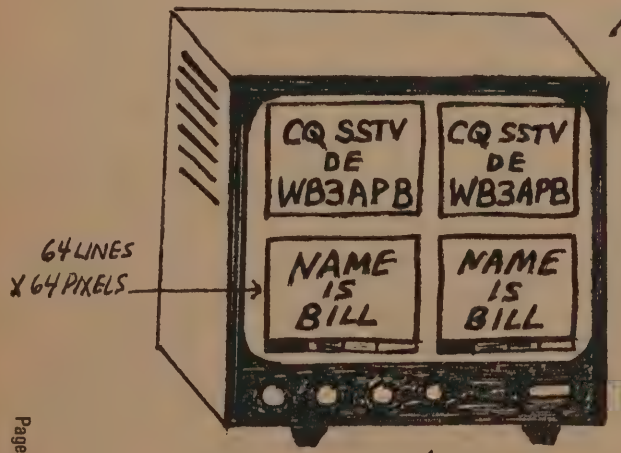
ROBOT 400 SSTV CONVERTER

64/128 LINE RECEIVE/DOUBLE IMAGE AND DUAL STACKING FRAMES MODIFICATIONS *

— DOUBLE MEMORY —

TRANSMIT 128/FULL HALF

RECEIVE 128/FULL HALF



DRAWN BY
— WBØQCD —
12-24-79

* VOIDS WARRANTY

All kinds of SSTV artwork "special effects" can be achieved. The only limitations are that of the operator. Picture multiplication and division are now being done on-the-air as well as from retaping techniques. One "Mickey Mouse" becomes four, then 16, then 64 etc. etc. One "CQ" sequence is being passed around that demonstrates over 10 billion, 100 million reproductions!

ENJOY! ENJOY! ENJOY!

Thanks to the following SSTVers for their originality and updating perfection:

WB4HCV WA7WOD WA4OAA WB3APB KB9FO

* *

"SSTV IDEAS" by WBØQCD

Wether you are in Radioteletype, Oscar Satellites or Slow-Scan Television, we are always plagued by those individuals who are not aware of (or could care less) about "recognized" and gentlemenly-agreed operating frequencies of "specialized communications".

On SSTV, since most of us also operate "voice" with our video transmissions, we have an excellent opportunity to tactfully and yet "strongly" explain our position and story to those interferring our "qso's". I have heard some SSTV'ers become "outraged" and actually run interfering video transmissions on top of the interfering individuals-thereby QRMing the frequency themselves. Anyone who has worked the bands for any length of time knows that in most cases, this only adds to the problem and does not solve it.

I do believe, however, that "we" shouldn't be run off and have to QSY to another frequency when we have already agreed amo ng ourselves to limit our A5 transmissions to a very small segment of the legally available portion of the band. Break-in, or wait until the end of the qso and try to explain what SSTV is all about and why we use only certain portions of the frequency. I have yet to have a station disagree with that line of thought, once explained. A few, actually asked questions about SSTV and how they could get started.

Enclosed, is a handmade postcard, that for 10¢-you may not only directly notify the interferring stations, but explain very simply why you feel the way you do. I have had a few return answers of apology and I am convinced that those stations receiving the "notices" will long remember to avoid those "crazy tones".

Naturally, this method can be modified for rtty or other applications.

Dear OM: _____ Amateur Television A5

On _____ 198 ___ at time _____ GMT and on freq. _____ Mhz. YOUR SSB SIGNAL INTERFERRED WITH AN ESTABLISHED SSTV QSO. SSTV enthusiasts limit their operations to 3.845, 7.171, 21.340, 14.230 and 28.680 Mhz. to minimize interference to others. WE ARE LEGAL TO RUN SSTV EMISSIONS ON ANY PORTION OF THE ALLOTTED "PHONE" PORTIONS. Won't you please recognize and respect SSTV frequencies? We appreciate your co-operation. If you ever become interested in A5 operation, dont hesitate to ask me for help! 73's _____

SSTV activity is growing by leaps and bounds! Many "new stations" are coming on-the-air everyday. Henry Ruh, our publisher, reports a recent upsurge in subscriptions to A5 by SSTVers. In keeping with the fine traditions of reporting what is happening in Amateur Television, A5 MAGAZINE now supports space for SSTV-DX reports in addition to the already established regular "K4TWJ-Dave Ingram---SSTV" column that has appeared--for many years. Pass the word that A5 is where to get your SSTV articles and information. Several SSTV articles will appear in later issues and an SSTV booth will be at Dayton "Hamvention" this year. (Send SSTV-DX reports to column-editor.)

SSTV-DX has been "hot" this year (1979) with the peaking of the sun-spot cycle and is best demonstrated by the nearly "QRM"free/QRP activity going on at 28.680 Mhz. G3MW Rich in England was recently awarded #1 holder of A5's "Master Scanner Certificate" & for five and six-bands! Rich, an ole-timer at SSTV, has joined the few such as W8YEK in achiving more than 100 countries confirmed for SSTV-DXCC. Congratulations Richard! GW3CVY, Jay in Wales, is confirming reception of SSTV signals from stateside on 28mhz while operating on "Solar-power"! W4MDP-Sam and W9WED worked him for almost an hour-on Dec. 21st. Jay, a young 80, will be operational in early 1980 for perhaps the 1st "solar-powered" SSTV-DX station! ZL1BLV, Derek in Rotorua, New Zealand reports 44 DX countries on SSTV including many JA's and US stations late afternoons and early evenings (US time) on ten-meters. DU1SS, Edgar in Quezon City, Phillipines now on SSTV--with Yeasu FT901 & Robot 70/80 series. Look for him at 14.230 Mhz. WB5UDU, Len in--Texas awarding SSTV "Bullshippers" certificates, ask him if you qualify? VO1BL, Bob-in St. John's, Newfoundland operating .680 with new Drake TR7. 5NØDOG, Dave in Lagos Nigeria, Africa temporairily "down" for relocation while VE7BVA is "up" and operating on 28 Mhz. ZS6BQT, Ernie in South Africa likes WB1ARZ "Beacon Falls" pictures and is quite active during the day. Many Mexican SSTV stations are on if you'll swing the--beam south and listen for XE1HN, XE1NI and XE1LCH. XE1LCH runs SSTV in the mobile on the way to the local Kentucky-Fried Chicken. K6AEP, Clay in San Jose, CA. continues to amaze us all with his achievments on SSTV with his SWTP-6800 computer. See 73mag.

YB9X in Indonesia and TF3IW in Rashivek, Iceland operating on 14.230 Mhz. W5ZR began the "new year" off right with contacts DL3UH and OZ4IP. WB8WOJ, Dale also QRP/SSTV on Solar-power. WB7TRE, Joe in Phoenix running 2.5 watts A5 using converted CB rig. Can ZD8KG, Kent keep his sanity on Ascension Island out there in the Atlantic? Send him some "good" girly pictures from back home. Kent works on refrigeration equipment at American Aerospace Base there and also deep-sea dives! You'll find him mostly on 10 meters. Point the antenna north for many Japanese SSTV stations with interesting "video-graphic keyboards" such as JA1JRK, JA4NA, JA3EV, JA2JPX, JA3EP, JA3EQC, JA7CEY and JA3CF. They come in around 28.680 by about 6-7 pm. and last until 9-10 pm. (CST) WA7WOD and WA4OAA have excellent TRS-80 SSTV keyboard "graphic lettering" programs & a "neat" conversion to the Robot 400's for 64 line "mini-pictures". (A5 article to come). PAØDXY in Holland, PY2EWL in Brazil, OZ4IP in Denmark, HB9AHJ in Switzerland & a "rare" TR8WR all active 28.680 Mhz. 29.150 Mhz. being used for W9NTP MSTV experimentation and 29.180 (500 kc bandswitch) is secondary QRM or contest-plagued auxillary SSTV operating frequency. HL9TW, Troy in Souel, Korea (American serviceman) relaxing and giving out contacts on SSTV operation on 28 Mhz. Launching of University of Surrey AMSAT-UK UOAST Satellite is mid-1981 with on-board SSTV camera! Don't forget 73 mag. SSTV CONTEST on March 8th and 9th!

See you on VIDEO!

Mike

RTTY Journal
VHF RTTY NEWS
Mike Stone, WBØQCD
P.O. Box H, Lowden, Iowa 52255

"VIDEO DXING"

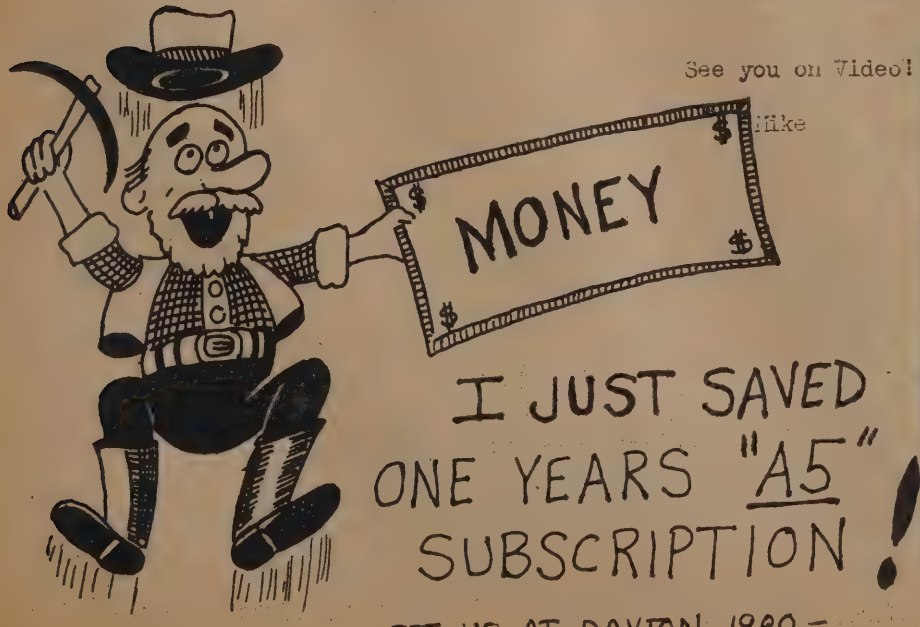
SSTV video DX
A5 Amateur Television Magazine
Mike Stone, WBØQCD
P.O. Box H, Lowden, Iowa 52255

Peaking of the sun-spot cycle during the summer season brought 10 meter SSTV DXing alive! It is commonplace now to work stations worldwide and almost set your watch as to the time of day. Of course, 28.680 Mhz. SSTV frequency provides much more freer room to operate for a number of television stations as well as having less QRM in comparison to other HF frequencies. G3WW, Rick in England can be heard daily and is working on his conversion of the Robot 400 for double-division of pictures. Rich reports he is looking for stateside contacts on 256 line transmission. 5NØDOG, Dave in Nigeria, Africa (Lagos) continues to provide excellent long contacts from a rare country for any mode-let alone ATV. Best chance in catching Dave is in the morning hours up till about 11 am. CST. Those of you who worked KZ5RH, Bob, should QSL as soon as possible with SASE as Panama Canal Zone ceased legal operation on the ham bands under special "KZ" callsigns because of "Carters giveaway." A couple real "rare" contacs to be on the look out for are ZD8KG-Kent in the Ascencion Islands and TR8AR in Gabon Republic, eastern Africa. Saw a 5T5AY call in there the other day, anyone work him on SSTV? LU4DGN, Charlie in Buenos Aires, Argentina (originator of 10 meter TIC-TAC-TOE Club) continues to score victories and is the champion of South America. Arizona state champion W7KPW cheats, be careful! Need Hawaii? Look for KH6SB on both 10 and 20 meters. VK3AIH Keith in Austraila and Derek, ZL1BLV in New Zealand are teaming together late evenings our time for two excellent contacts. PJ2FR, Fred in Curacao now running 10 meter SSTV as is Luis, XE1ICH in Mexico. (Luis runs SSB in the mobile for schedule coordination while on runs to the local Pepe' Taco.) Other African stations to watch for are ZS6BQT and ZS6PP. (BQT likes the girly pictures.) Puerto Rico has some active SSTV DXers in KP4EDK, KP4FND and any of the fellas operating KP4RC-Radio Club of Electrical Engineering at the University of PR, at Mayaguez.

The fall season got into full swing with noticeable shortened hours on 28 Mhz. Point the beams north however, when you think the band has folded and you'll work Japan DXers like JA3EF, Taca-JA3EQC, Hiro, JA7CEY-Aki, and JA9AJZ. Guam on SSTV? You bet!..AH2E Mark is tuning the bands. OZ3WP will show you his pipe collection and Skandinavia Tobacco from Copenhagen, Denmark. European SSTV is hot and heavy in the mornings with stations like F9KP, I3AWN and I3FWY, YU3NAM, G3IAI, G4CZT and a bunch of Germans; DK3EX, DL8AT, DK6BC, DF4FX, DL8WE, DL3UH, DK5LM, DF4TA and DK4HT. A "rare" contact that will QSL is 4Z4MB in Israel. Sam, WA7WOD has new program available for TRS-80 users for SSTV keyboard. KA6FEJ new California TIC-TAC-TOE champion. WA4OAA suggests alternate 10 meter SSTV frequency during contest weekends or heavy activity on 28.680 Mhz., taking a survey and looking for suggestions? (29.180 flip-of-the band switch?) Looking forward to Dayton 1980! Keep sending reports on FSTV and SSTV DXing!

See you on Video!

Mike



Harry Dannals, W2HD, President of the ARRL caught here by WBØQCD, promoting ATV at the Cedar Rapids, Iowa hamvention. Part of the ARRL "new image"?

ATV RPT SURVEY

A5 would like to put out a first ATV REPEATER directory. There have been a number of them put up which we know are operating, but no one has ever sent us data, or the data we have is quite old. So, how about spending a few minutes and filling in the blanks. Its nice to know when you travel, where you can get on the air!

VITAL STATISTICS, ATV REPEATERS

CITY OF LICENSE _____
CALL LETTERS _____
CLUB or TRUSTEE _____
MAILING ADDRESS _____

HOURS OF OPERATION _____

VIDEO INPUT FREQUENCY _____
AUDIO INPUT FREQUENCY _____
VIDEO OUTPUT FREQUENCY _____
AUDIO OUTPUT FREQUENCY _____
VIDEO ERP _____ AUDIO ERP _____
COLOR? _____ COMPUTER? _____
ACCESS CONTROL (open, tone) _____
FIRST DAY OF OPERATION _____
NUMBER OF (users or members) _____
BEST DX _____
CALL UP FEATURES (list) _____

SPECIAL FEATURES (additional audio channels, inputs, user programs, speciallocation etc)

(use more room if necessary)

TECHNICAL: Type TX, Rx, Ant, Coax, hgt above terrain, type final, special equipment, control system, _____

Regular club meeting _____

REGULAR ON THE AIR MEETING OR NET

PRE-RECORDED PROGRAMS AVAILABLE TO USER (news, message storage) _____

VIDEO TAPE DEMO AVAILABLE? _____
FORMAT, LENGTH _____
ON SITE CAMERA? _____
ACCESS TO WEATHER RADAR? _____

AUTOMATIC SIGNAL REPORTING SYSTEM

SIGNAL PATTERN (directional, non-directional vertical, horizontal) _____

draw a simple map showing RPT location, major cities, or major land features of coverage area in space below:

ANY ADDITIONAL INFORMATION? _____
(fill in the blank)

CLIP + SHIP, TO A5.

★ Technical Forums
★ ARRL and FCC Forums
★ GIANT 3-Day Flea Market
★ New Products and Exhibits
★ Grand Banquet
★ Women's Activities
★ Special Group Meetings
★ Hundreds of Prizes
★ CW Proficiency Tests
★ Amateur of Year Award
★ Special Achievement Awards
★ Expanded Exhibits and Parking

DAYTON HAMVENTION® '80

April 25, 26, 27, 1980
Hara Arena and Exhibition Center Dayton, Ohio

Meet your amateur radio friends from all over the world at the internationally famous Dayton HAMVENTION.

Banquet speaker Saturday evening will be Senator Barry M. Goldwater, K7UGA. Seating will be limited so please make reservations early.

If you have registered within the last 3 years you will receive a brochure in late February. If not write Box 44, Dayton, OH 45401.

Nominations are requested for Radio Amateur of the Year and Special Achievement Awards. Nomination forms are available from Awards Chairman, Box 44, Dayton, OH 45401.

For special motel rates and reservations write to Hamvention Housing, 1980 Winters Tower, Dayton, OH 45423. **NO RESERVATIONS WILL BE ACCEPTED BY TELEPHONE.**

All other inquiries write Box 44, Dayton, OH 45401 or phone (513) 296-1165 — 5-10 P.M. EST.

Rates for ALL 3 Days:
Admission: $5 in advance, $6 at door.
Flea Market Space: $11 in advance, $13 at gate.
Banquet: $12 in advance, $14 at door.

Make checks payable to Dayton HAMVENTION, Box 333, Dayton, OH 45405.

Bring your family and enjoy a great weekend in Dayton.

Sponsored by the Dayton Amateur Radio Association, Inc.

FIRST OF A SERIES

FTC Revolt

You've heard of the tax revolt. It's about time for an FTC revolt. Here's my story and why we've got to stop federal bureaucratic regulation.

My story is only one example of how the FTC is harassing small businesses but I'm not going to sit back and take it.

By Joseph Sugarman,
President, JS&A Group, Inc.

I'm pretty lucky. When I started my business in my basement eight years ago, I had little more than an idea and a product.

The product was the pocket calculator. The idea was to sell it through advertisements in national magazines and newspapers.

Those first years in the basement weren't easy. But, we worked hard and through imaginative advertising and a dedicated staff, JS&A grew rapidly to become well recognized as an innovator in electronics and marketing.

THREE BLIZZARDS

In January of 1979, three major blizzards struck the Chicago area. The heaviest snowfall hit Northbrook, our village—just 20 miles north of Chicago.

Many of our employees were stranded—unable to get to our office where huge drifts made travel impossible. Not only were we unable to reach our office, but our computer totally broke down leaving us in even deeper trouble.

But we fought back. Our staff worked around the clock and on weekends. First, we processed orders manually. We also hired a group of computer specialists, rented outside computer time, employed a computer service bureau, and hired temporary help to feed this new computer network. We never gave up. Our totally dedicated staff and the patience of many of our customers helped us through the worst few months in our history. Although there were many customers who had to wait over 30 days for their parcels, every package was eventually shipped.

WE OPENED OUR DOORS

During this period, some of our customers called the FTC (Federal Trade Commission) to complain. We couldn't blame them. Despite our efforts to manually notify our customers of our delays, our computer was not functioning making the task extremely difficult.

The FTC advised JS&A of these complaints. To assure the FTC that we were a responsible company, we invited them to visit us. During their visit we showed them our computerized microfilm system which we use to back up every transaction. We showed them our new dual computer system (our main system and a backup system in case our main system ever failed again). And, we demonstrated how we were able to locate and trace every order. We were very cooperative, allowing them to look at every document they requested.

The FTC left. About one week later, they called and told us that they wanted us to pay a $100,000 penalty for not shipping our products within their 30-day rule. (The FTC rule states that anyone paying by check is entitled to have their purchase shipped within 30 days or they must be notified and given the option to cancel.)

NOT BY CONGRESS

The FTC rule is not a law nor a statute passed by Congress, but rather a rule created by the FTC to strengthen their enforcement powers. I always felt that the rule was intended to be used against companies that purposely took advantage of the consumer. Instead, it appears that the real violators, who often are too difficult to prosecute, get away while JS&A, a visible and highly respected company that pays taxes and has contributed to our free enterprise system, is singled out. I don't think that was the intent of the rule.

And when the FTC goes to court, they have the full resources of the US Government. Small, legitimate businesses haven't got a chance.

We're not perfect. We do make mistakes. But if we do make a mistake, we admit it, accept the responsibility, and then take whatever measures necessary to correct it. That's how we've built our reputation.

BLOW YOUR KNEE CAPS OFF

Our attorneys advised us to settle. As one attorney said, "It's like a bully pulling out a gun and saying, 'If you don't give me a nickel, I'll blow your knee caps off.'" They advised us that the government will subpoena thousands of documents to harass us and cause us great inconvenience. They warned us that even if we went to court and won, we would end up spending more in legal fees than if we settled.

To settle would mean to negotiate a fine and sign a consent decree. The FTC would then issue a press release publicizing their victory.

At first we tried to settle. We met with two young FTC attorneys and agreed in principle to pay consumers for any damages caused them. But there were practically no damages, just a temporary computer problem, some late shipments, and some bad weather. The FTC then issued a massive subpoena requesting documents that will take us months to gather and which we feel was designed to harass or force us to accept their original $100,000 settlement request.

Remember, the FTC publicizes their actions. And the higher the fine, the more the publicity and the more stature these two attorneys will have at the FTC.

If this all sounds like blackmail—that's just what it appeared to be to us.

We did ship our products late—something we've admitted to them and which we publicly admit here, but we refuse to be blackmailed into paying a huge fine at the expense of our company's reputation—something we've worked hard eight years to build.

We're not a big company and we realize it would be easier to settle now at any cost. But we're not. If this advertisement can attract the attention of Congressmen and Senators who have the power to stop the harassment of Americans by the FTC, then our efforts will be well spent.

ALL AMERICANS AFFECTED

Federal regulation and the whims of a few career-building bureaucrats is costing taxpayers millions, destroying our free enterprise system, affecting our productivity as a nation and as a result is lowering everybody's standard of living.

I urge Congressmen, Senators, businessmen and above all, the consumer to support legislation to take the powers of the FTC from the hands of a few unelected officials and bring them back to Congress and the people.

I will be running this advertisement in hundreds of magazines and newspapers during the coming months. I'm not asking for contributions to support my effort as this is my battle, but I do urge you to send this advertisement to your Congressmen and Senators. That's how you can help.

America was built on the free enterprise system. Today, the FTC is undermining this system. Freedom is not something that can be taken for granted and you often must fight for what you believe. I'm prepared to lead that fight. Please help me.

Note: To find out the complete story and for a guide on what action you can take, write me personally for my free booklet, "Blow your knee caps off."

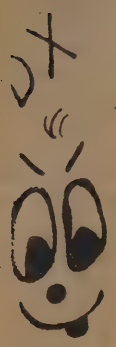
JS&A® PRODUCTS THAT THINK®
One JS&A Plaza, Northbrook, Ill. 60062

TEN METER A5 SSTV NET

FREQUENCY: 28.680 MHZ. MODE: A3J/SSB & A5/SSTV

TIME: 1800 GMT DAY: SATURDAYS

SSTV-ART



NET GUIDELINES FOR NET CONTROLS

The purpose of this net is for the passage of SSTV video transmissions, answering of questions related to SSTV operation and as a "gathering" place for 10 meter SSTV enthusiasts. Unlike the 20 meter SSTV net, this is a "picture" net for the exchange of video-information and not a technical discussion net. Stations with "involved" questions, modifications or ideas can by directed by NET CONTROL to QSY with those interested stations so that video transmissions may resume.

NET CONTROL STATIONS will always maintain "tight-control" of the entire NET and will allow new stations to break-in and enter every 30 minutes. A "NET CQ" tape call on video will be run when appropriate for NET callup or frequency establishment. NET CONTROL will never deviate from the established frequency. NET CONTROL will assign NET ASSISTANTS to aid in area relays, QRM station removals, etc. In case of band dropout, NET CONTROL will assign another station to "take-over" the NET. NET CONTROL will always "video-replay" net member station transmissions.

JOIN US!

NET GUIDELINES FOR MEMBER STATIONS

All SSTV stations "in the net", will not QRM or deviate from the assigned rotation except in possible relaying cases. Always go thru NET CONTROL! Limit your SSTV transmissions to one-frame each or a short series as in cartoons, etc. If a non-net station, SSB or SSTV, is QRMing the NET-ask him tactfully to please QSY. This is the job of all of us! Limit technical questions to non-net times, or ask for NET CONTROL to get someone with the "answer" to QSY off from the net. THIS IS A SSTV VIDEO PICTURE NET AND NOT A "RAGCHEW NET!"

NUDES!

A5 MAGAZINE carries much SSTV/FSTV/MSTV information including SSTV-DX reports and NET times and changes. c/o KB9FO, Henry Ruh, Box 1347, Bloomington, IND. Subscription rate $6.50 yearly (six issues).

CARTOONS

PERMANENT NET CONTROL STATIONS:

WBØQCD-Iowa, WBØKFB-Iowa, WBØUNB-Missouri, WB5UDU-Texas, WA4OAA-N. Carolina, WA7WOD-Utah, KA6FEJ-California, K6AEP-California, W6OBB-California, WB7EAW-Arizona, K1DMU-New Hampshire, WD4FHB-Florida, WB1ARZ-Connecticut, WB3APB-Pennsylvannia

PASS THE WORD!

SUBSCRIBE TO A5 ATV MAGAZINE!

BUILD A DIGITAL COLOR SSTV — FSTV SCAN CONVERTER

by Takao Yabana JAØBZC

4-29 Habaue Matsumoto 390 Japan

- - - - - - - - - - - - - - COVER FEATURE STORY - - - - - - - - - - - - -

The March 1979 Issue of A5 featured an article by Takao on how to build a digital FAST to SSTV converter using the BBD at a cost of less than $100. This year, Takao has provided a build it yourself article for a matching unit which will not only provide SSTV to FSTV conversion, but provide COLOR capability as well. A5 has sold out of the March 79 issue yet we still continue to receive requests for the original article. Thus at the end of this new contribution, you will find a reprint of the schematic and other errata for the FSTV to SSTV converter so those of you who want to build both units can find all the data in this one issue. (ed.)

COLOR SSTV TO FSTV

My SSTV monitor was of the older P-7 type and so it was difficult to view SSTV pictures in a room with normal lighting conditions. So, I deceided to build a digital scan converter for SSTV reception. I have been especially interested in COLOR SSTV transmission and reception so this project was built to work for both color and monochrome.

Circuit Characteristics

The circuits are very simple because the unit is built to only provide one way conversion, from slow to fast, thus eliminating the problems associated with dual conversion processes. The video memories are the well known 16 K bit dynamic RAM, MK4116, used in many microcomputers. You can find it in the Apple II and many others. The MK4116 is the smallest RAM device so it saves a lot of space when building. Since the SSTV input signal is very low data rate, the A/d converter does not require any great speed. I used an LED VU meter driver IC for the A/D converter. Regular binary code was used for the decade conversion. Two, 74148 IC's are just fine for the decade to binary conversion. Most scan converters use the Gray code (ie the Robot 400) which allows the signal to be inverted (positive/negative) however this is not required as a feature when used for receive only functions as the SSTV signal is always "positive". Thus the output signals are sent with only a latch buffer since no grey to Gray conversion is needed.

The scan converter is built on two, 15 x 10 CM PCB's. Single side clad glass board is used. The first board has the SSTV demodulator, SSTV A/D converter SSTV sync detector and FSTV, EIA sync generator. The second board has the video memory and memory driving circuit. The photos show the three memory boards used for COLOR. The two added boards are for RGB SSTV. The internal FSTV sync generator eliminates the need for any external sync for monochrome reception. Figure one is the block diagram for this.

Circuit Description

A 741 op amp is used for the SSTV video demodulator. This circuit was made by my friend JAØCVF, H. Fujimatsu in 1972 for his P-7 monitor. The circuit works very well and is very selective to the 1200 Hz sync signal. It has excellent noise immunity and has worked well in heavy QRM band conditions. There is not AFC circuit, so the SSTV sync signal is sent directly to memory, thus there was the need to have stable SSTV sync, which is provided by this circuit.

I used the 741 op amp because I had many on hand and they are inexpensive. All the opamps used are of the 741 variety, but you could substitute a 4558 and have equally good results. Capacitors are all of the mylar type and all resistor values are 5%.

A/D Conversion

In the A/D converter, I used 2 LED VU meter driver IC's. There are many of these on the surplus market now and work just fine for this purpose. The video is devided into 16 grey levels so it requires 15 comparators levels. The output of the driver IC's goed directly to the TTLs. I used a Toshiba TA7612AP in this circuit. When I first started to build the unit these were a little hard to obtain, but they are now readilly availalie. The IC has 10 comparators and fixed resistors. You need to add only a couple more resistors and the circuit is cmplete. The upper frequency limit is 200 Khz, so you cannot use it for FSTV, but you could use it for W9NTP's MSTV.

The TA7612AP's drive the 74148's directly.

Code Making

You must convert the 16 levels of video to 4 lines. I do not know of a 16 to 4 conversion on one chip, so I used 2, 74148 and a 7400 to make the grey code. The SSTV sync signal is picked up by the 1200Hz band pass filter and is devided into H and V by a low pass filter. This is easy to do because of the 1200 Hz filter in the demodulator.

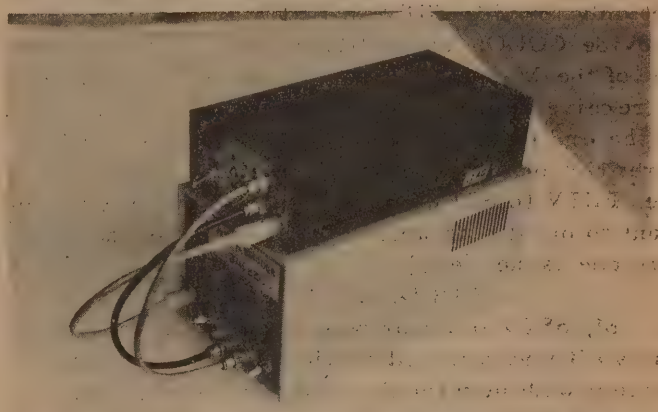
Two to one interlace FSTV sync is generated is accordance with NTSC. Thus we start with a 31.5 Khz oscillator and devide to provide 15.734 and 59.95 (15,750/60) by deviding by 2 and 525. This can also be done with the CMOS one chip sync generators available.

MEMORY

The memory uses the common 16 K bit RAM MK4116 (uPD416D). One picture of SSTV needs 128 x 128 x 16 bits for monochrome which we can convert to 128 by 128 by 4 binary levels. This is 65,536 bits per memory. This exactly fits the character of the MK4116! And, the MK4116 is a simple 16 pin DIP and uses low power. The address lines of the memory are only A0-A6. Seven lines drive the complete row and column address. It needs to have refresh since it is synamic, but this is not required in our circuit because the read cycle is enough speed to keep it refreshed. Since our output is FSTV, we need the high speed type memory for the read cycle. I used 250 ns and 200 ns type access time. All of them work well. If the read speed is slightly higher than normal the units will begin to error. So, be sure to use an IC with a speed of 250 ns or better access time if you use different chips. I used the NEC uPD416D-1 and uPD 416D-2. The cost in autumn 1978 was $17, but is currently $4 which makes it VERY CHEAP MEMORY. The ouput is used once and sent to the shift registers, 74175's.

D/A CONVERSION

The digital video signal is simple binary. The R, 2R, 4R, 8R type D/A is very easy to build. The resistors are normal 5% types. Since you must insert sync, and pull up the blanking level, a little DC is brought in using a 47 K ohm resistor from the 12 V line. The output Z is higher than 75 ohms, so an emitter follower is used to drive a 75 ohm line. My video monitor has a Hi Z input, so I did not use the EF. But, my NTSC encoder is 75 ohms, and requires the EF. In the photo you will note a small PCB which holds the three EF which use 2SC503's to drive the RGB inputs of the NTSC encoder.



Ed. note; The NTSC encoder refered to in the text was published in the July-1978 issue of A5. No, we do not have copies on hand, but you will find the material later in this issue for those of you who are new subscribers, or for the "old timers" who can't find the issue in their collections. Aren't we nice!?!

READ AND WRITE

The write and read counters are 74LS393 normal binary counters. They are much like the 7493 duals. The row of the write counter is put as 1/8 FSTV vertical sync signal. The reset of the write counters are directly driven from the SSTV sync.

The picture position and read circuit.

The position of the horizontal occurs by the 74121. It sets RS FF (IC 20) 7400. When the RSFF sets, the oscillator (IC 19) 7404 begins and the (IC-27) 74LS393 counts. The start position of the TV screen is decided by timing cap and resistor in IC 24, 74121. The width in the screen is decided by 7404 (IC 19) oscillator frequency. If the oscillator and one shot are unstable, the start position and width will change. Since this would not be good, you need to use care and utilize good temperature compensated capacitors like mylar and mica. Do not use any ceramic caps in this circuit.

When the 74LS393 (IC27) counts 256, RSFF (IC20) resets and IC 27 stops. IC 27 then waits for the next horizontal sync pulse. IC 21 makes the blanking pulse, the time of which is determined by the 220 ohm and ,002 uf mylar cap. Vartical is almost the same as horizontal. The clock of the certical counter is fed drom the FS TV H synv.

The address line of the MK4116 consist of only seven lines. The system uses alternate row and column addresses. The memory will not work unlessthe timing pulse is correct. I experimented with some various pulse widths using a 50 Mhz delayed sweep scope, and had to go to a 100 Mhz scope as the pulse time was so small. The 74121's are running flat out at maximum speed! (IC 23, 31, 32). I tried several vintages of TI units and all tested good, so probably any good 74121 will work in here. The address selector must supply the MK4116 for 4 line address from four 74LS153's. It is a dual4line to 1 line multiplexer, and I used 3 1/2 for bit 7.

To freeze the frame (stop the write) simply halt the horizontal sync. I use it for color SSTV to add the GRB pictures. It is very useful to copy QRA, QTH, etc during the still function. When the still switch ison, the memories are not writing.

Power requirements are plus 12 at 150 ma, plus 5 at 500 ma, - 5 at 1 ma, and 1 -2 at 100ma. For the plus 12 and 5, single chip regulators like the 7812 and 7805 are best. The negative supply voltages do not have to be regulated, but could be if you like. A single transistor and zener is good enough.

In my unit, I wanted to built it in as small a unit as I could, so I used 10 x 15 cm PCB.s This did prove to be a bit too small, and unless you are willing to do some fine work, I suggest that anyone bulding one of these use somewhat bigger boards for easier construction. (Ed. note: perhaps someone would be willing to offer PCB's for all the boards, ready for parts stuffing??)

All the parts are garden variety and no one should have any difficulty obtaining any of the transistors or IC's. Most have been out for over a year and should be available even in surplus.

ADJUSTMENT

The D/A converter board. Some little adjustment is required. Refer to fig. 2. You will need an SSTV signal source. Connect the board to the power supply and SSTV signal. You should be able to see the SSTV signal using a scope at pin 6 of IC 4. If not, check the diode polarity or IC's and check for errors if any.

Next, look at IC 11 (7404) SSTV. H and V sync appear here. Connect the D/A converter fig 5 out of IC 18. See the test point of fig. 5 and you will see the same signal before the A/D converter.

Adjust VR5, a 47 K pot and 4.7 K VR near IC 6 for the same signal before the A/D converter.

Use a 1500 Hz audio generator and set the VR's for black using the test point. Likewise use 2300 Hz and adjust for white. There is some interaction, so do it several times to get the full swing from black and white. This will set the D/A in SSTV. A dual trace scope is handy, but not necessary. There is no adjustment to the sync generator (NTSC) but be sure it is running.

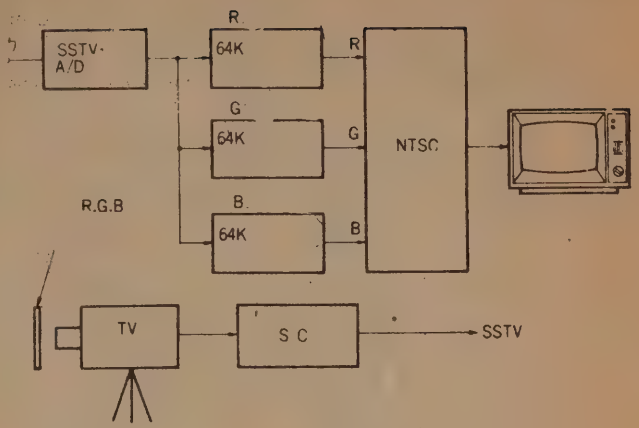
To adjust the memory board, remove the MK4116's. They are MOS and should be in sockets. Connect the power and all wires with the RAM's pulled out and check the socket voltages. If the voltages are OK, then connect a monitor on the output and we will start looking for pictures. With an SSTV input signal, insert ONE, RAM. You should see a 2 level black/white picture. If there is no picture, you have an error. The address selector pulses are very narrow, and you will need a 50 Mhz scope to see them. If you have the 2 level picture, you can insert the other three RAM's and you should have a good SSTV picture! Use the width control to adjust the output for proper size.

SCAN CONVERTER continued...

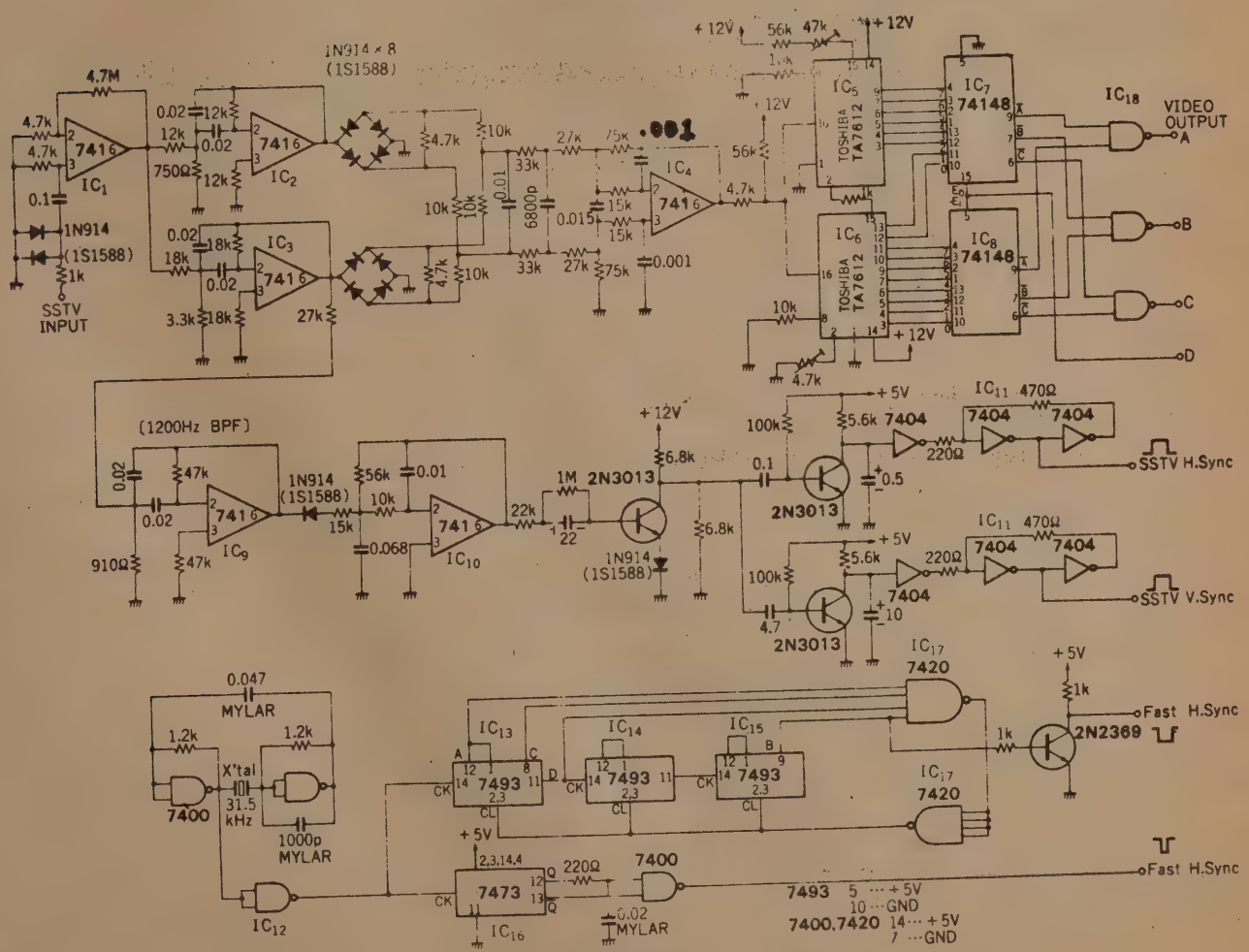
If the start position of the picture is too far left or right, you can move it by adjusting the value of the IC-24 resistor. There is no RF output to connect to your TV as my monitor has video input. You could make one easilly enough.

This scan conerter was developed by myself alone. I am not a professional electronics engineer, my house is a small variety store in our city. I am a true amateur! If you should find any good changes please let me know. I will be waiting for any advice from this article.

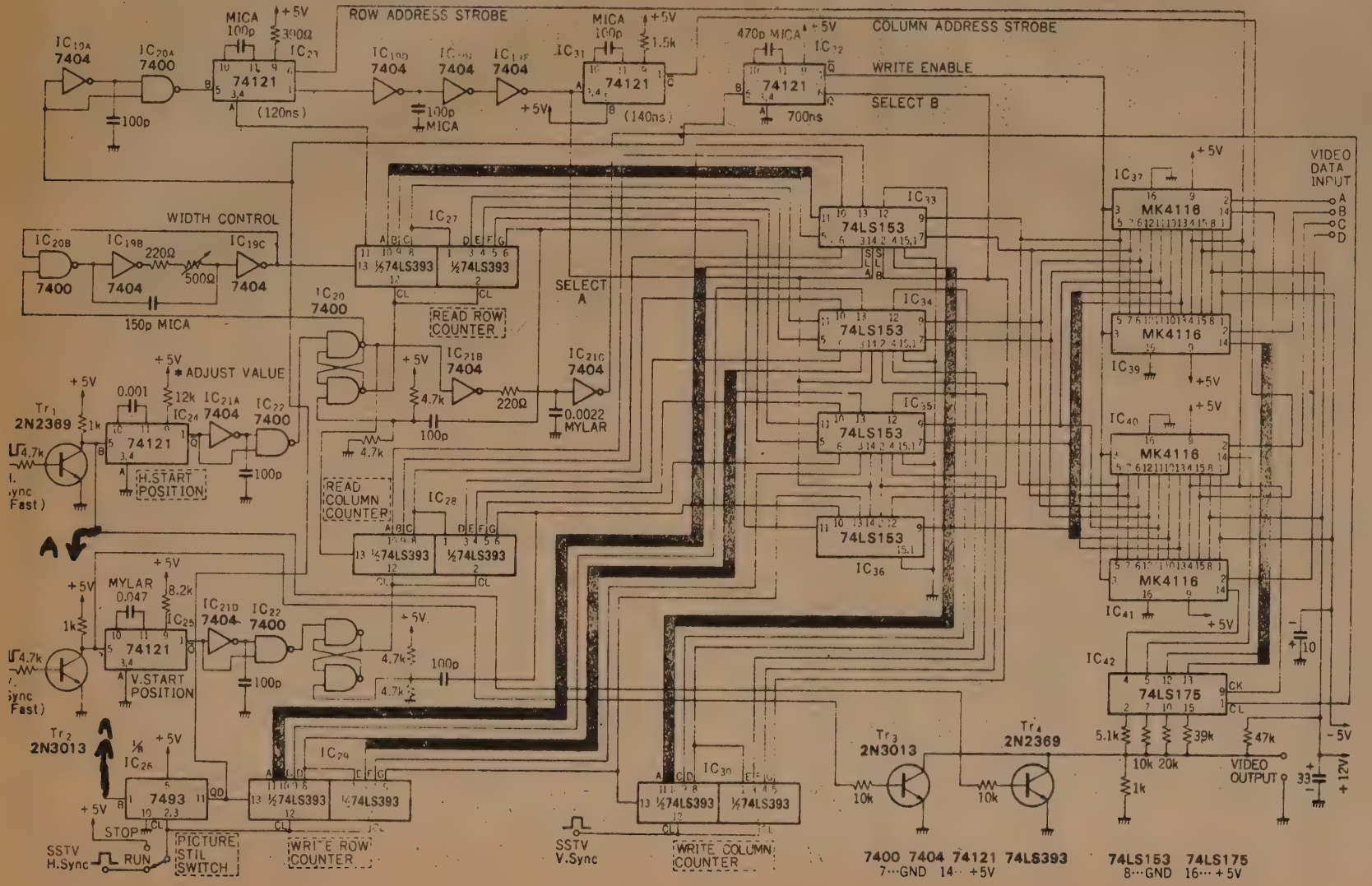
The S/C can get two or three color SSTV. Each frame remembers R, G, or B, and three frames make a complete picture for full color. I would like to contact color SSTV stations who like this system. But in Japan, none operate! Ed. note: OK folks, get your color celophane or plastic out and ship over some sequential color SSTV pix.



SSTV A- D CONVERTER

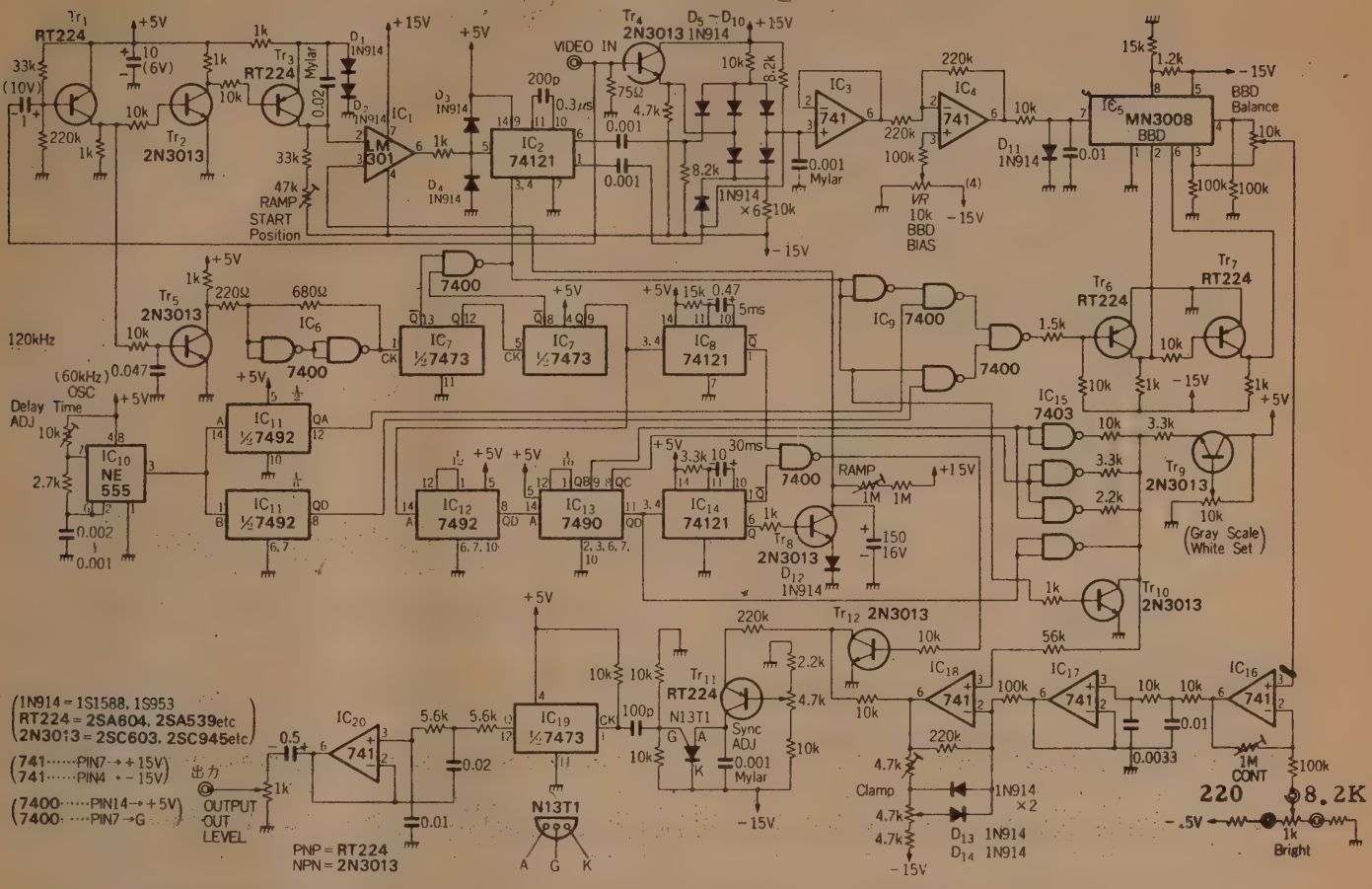


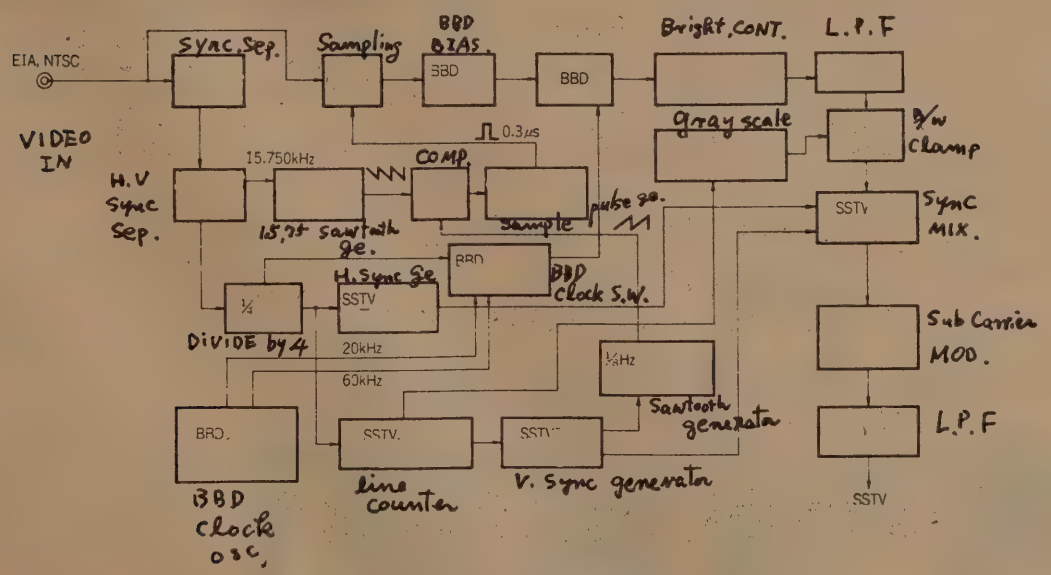
SSTV D/A CONVERTER



FSTV TO SSTV CONVERTER FOR $100

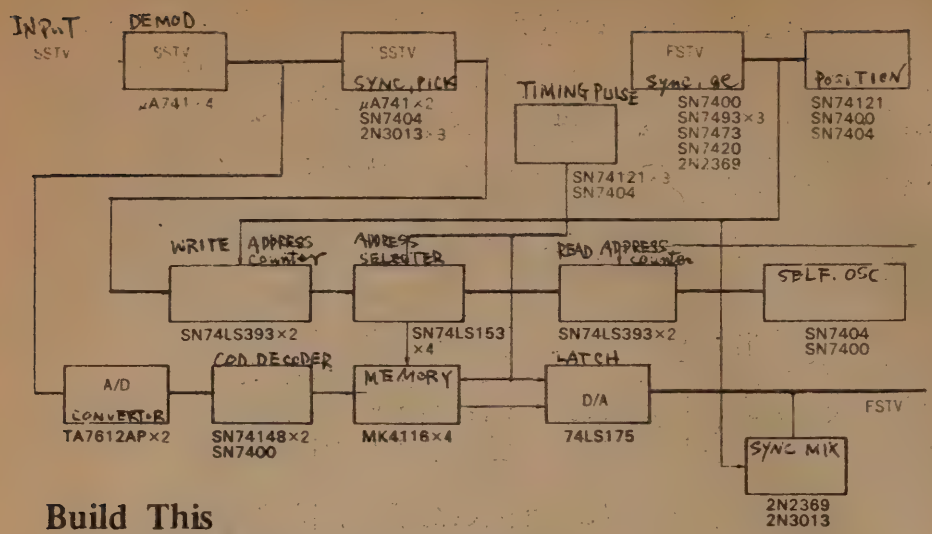
From March 79 A5, Digital fast to slow converter by JAØBZC



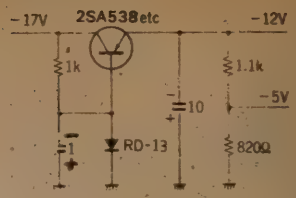


ATV MAGAZINE subscription rates are going up effective April 1, 1980. Increase is caused by cost of postage and larger issues, (more pages). New rates on inside back cover.

Block diagram, SSTV to FSTV



Typical P/S circuit



Build This
No Special Parts NTSC Encoder

by
Takao Yabana JAOBZC
4-29 Habaue Matsumoto
Nagamo 390 Japan

As a long time subscriber of A5 magazine here in Japan, I read each issue with great interest. Over the years I have read several short articles on various color projects, but have not seen any in A5 or any other ham magazine on how to build the color encoder to be able to broadcast a live color picture. So here is my NTSC encoder project, which uses no special parts. Most NTSC encoders manufacturered use special parts and those in cameras also use special parts. This is not necessary as you can see from my unit.

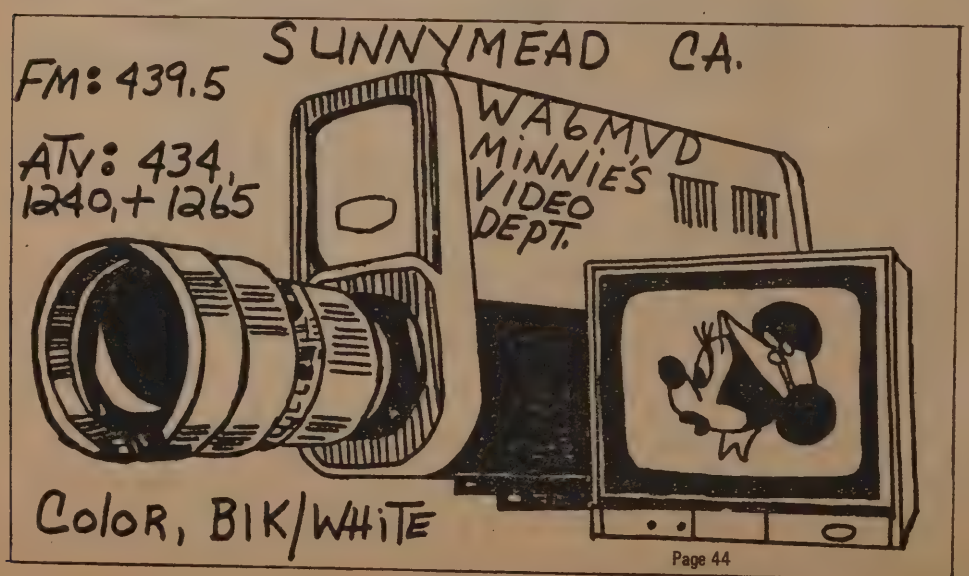
My friend Bruce WB4YTU called on me last year and he saw my encoder in operation.

The NTSC system is well known, but has not been developed well by the amateur. This is probably because most available circuits use special parts, making it expensive or difficult to build. I had decided I would make an encoder with no special parts so anyone could build it. I also live in the country, some 250 Km from Tokyo, so it is difficult for me to get many parts.

All of the matrix resistors are 1%, although carefully hand picked 5% values will work well also. Once completed, the unit worked right away, there were no problems. The delay line was removed from a discarded color TV set. Sync was made from a 14.31818 Mhz xtal. The logic is all TTL. This is because I had a good supply of TTL on hand. CMOS would also work well.

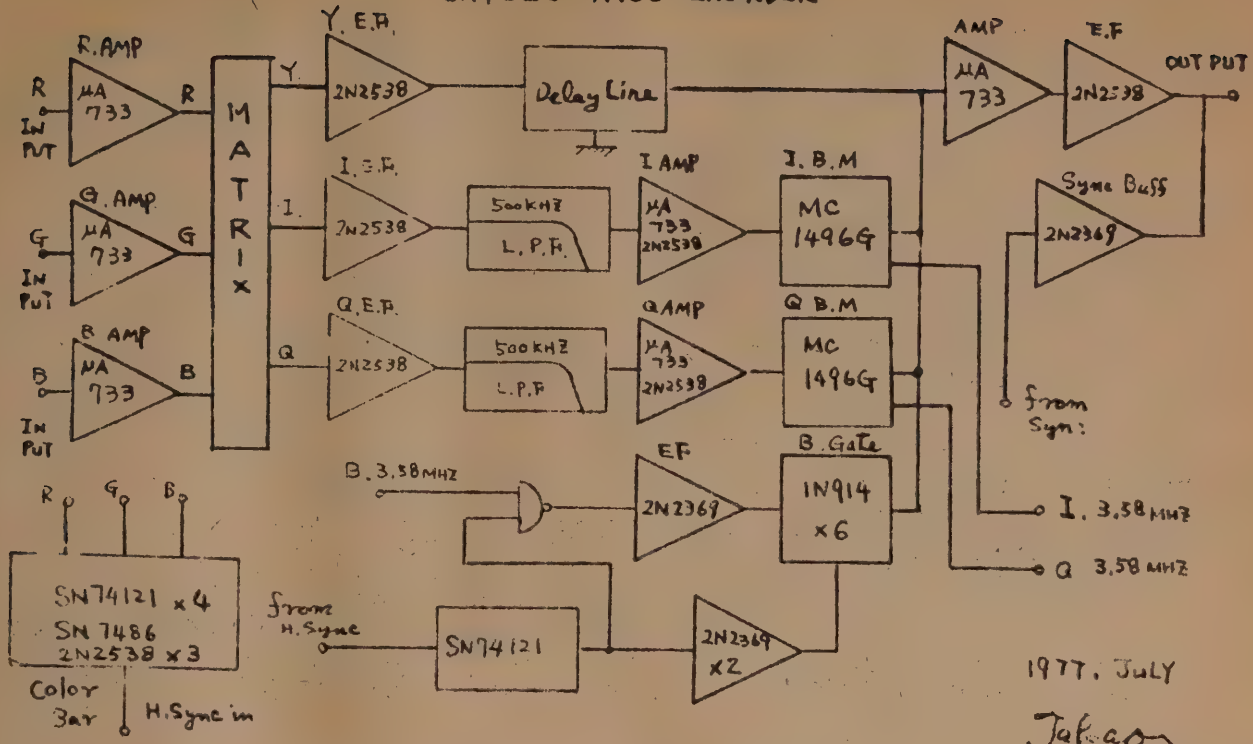
I would like to contact ATVers who operate color, or are building the encoder. I have some difficulty in explaining the circuit as my English is not as good as my Japanese hi! So here are all the schematics, which are fairly self explanatory. Also, some photo's of my completed and working unit. 73 Takao

AVOID THIS: GO ATV !!! ... Read A5 MAG.

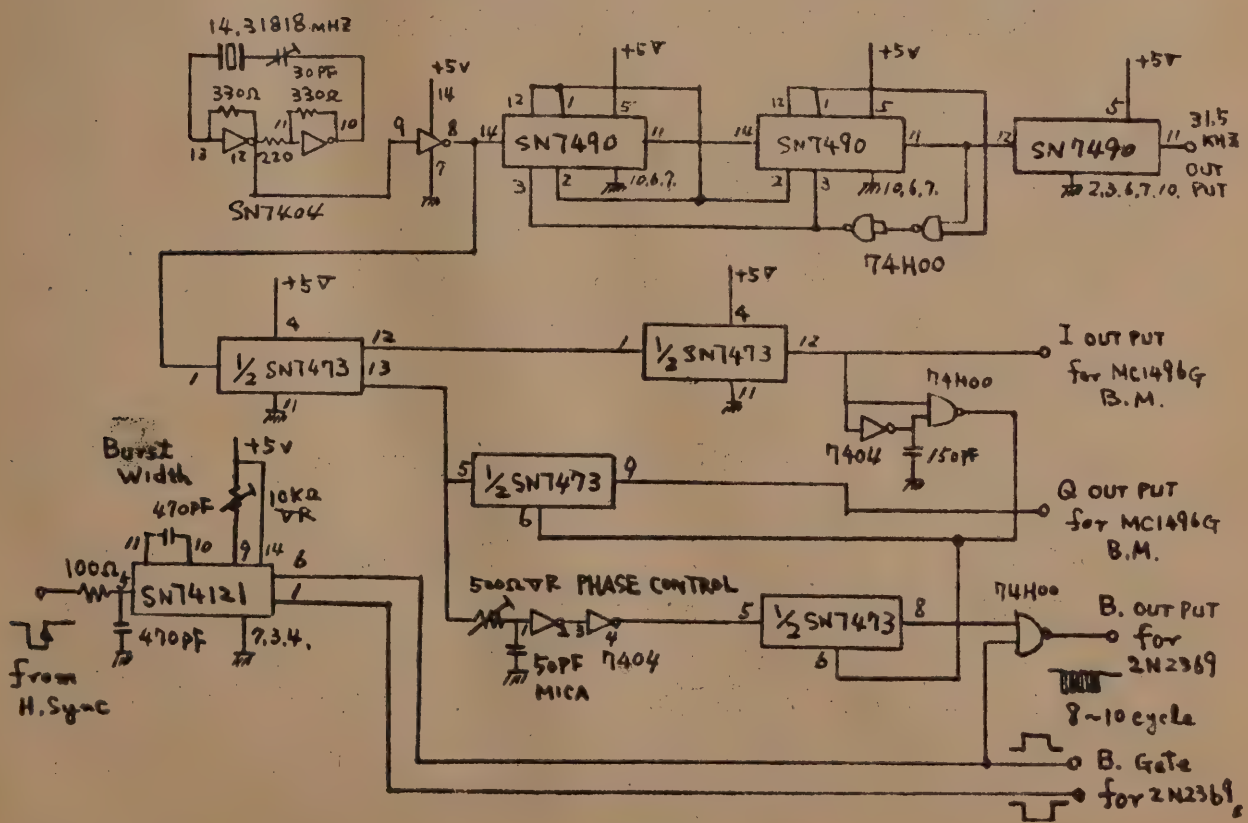


NO.1.

JAΦBZC NTSC ENCORDER

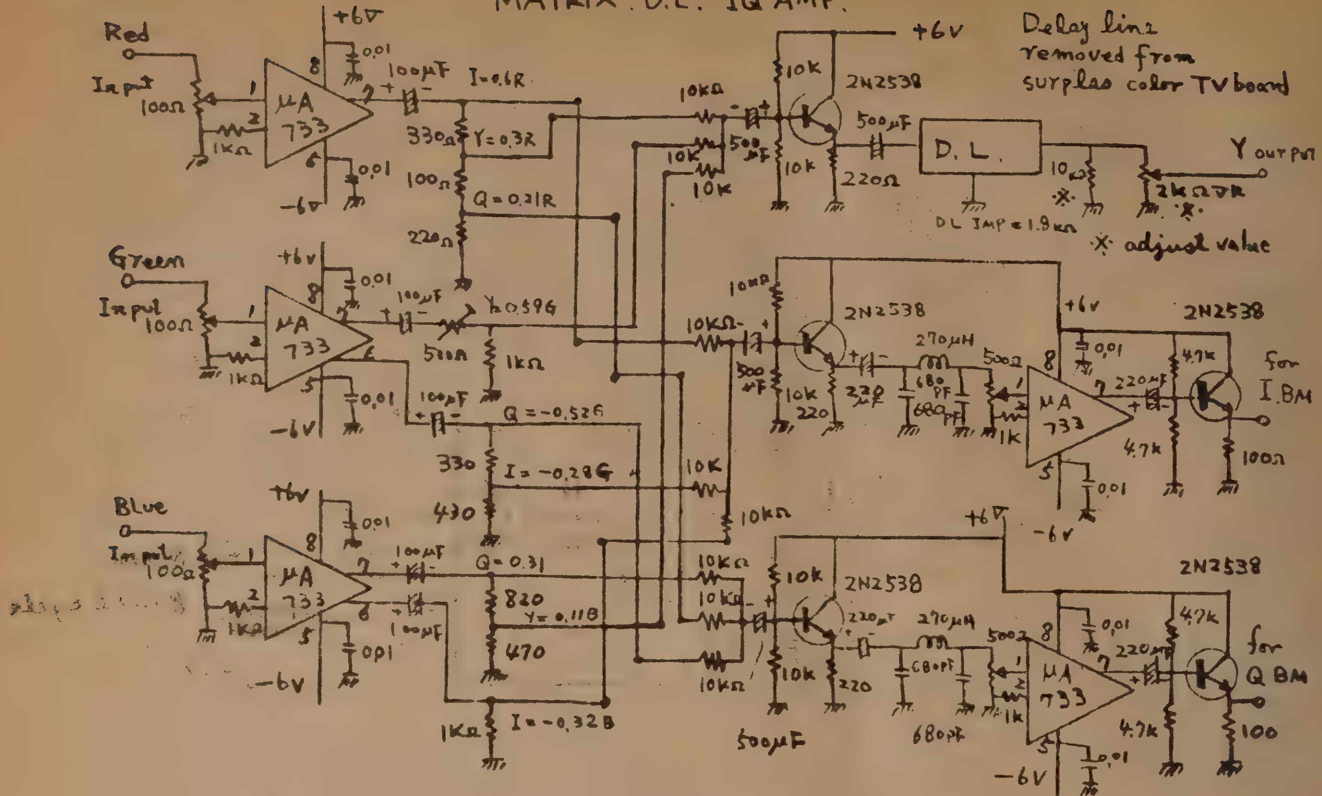


NO.2 3.58MHZ sub carrier and 31.5KHZ generator.



No.3

MATRIX . D.L. IQ AMP.



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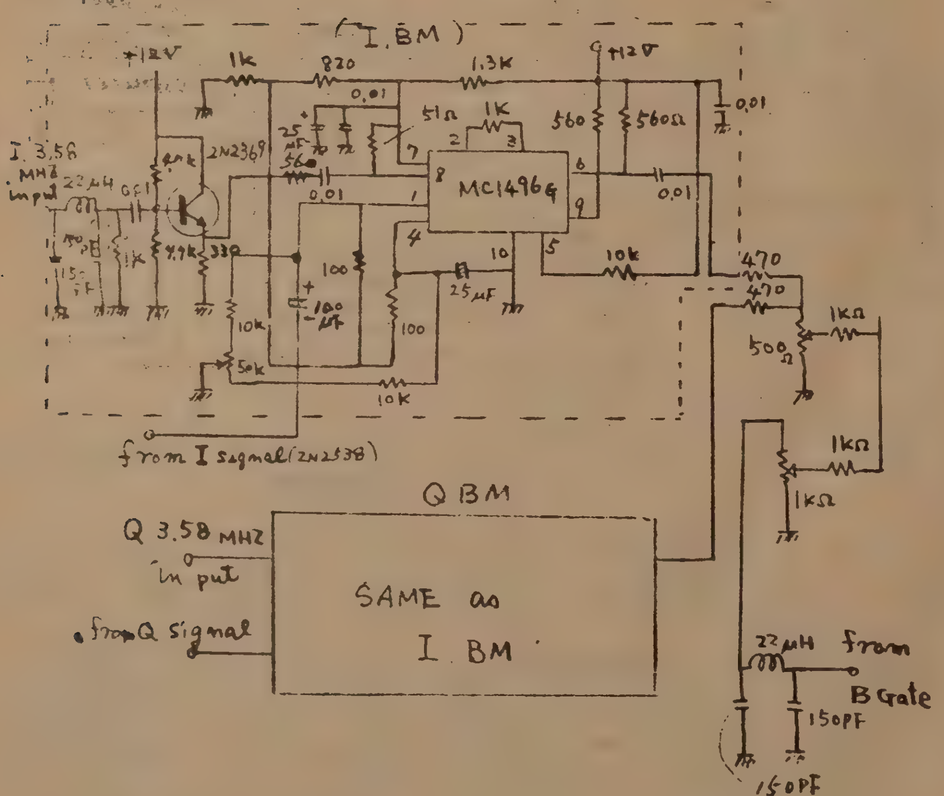
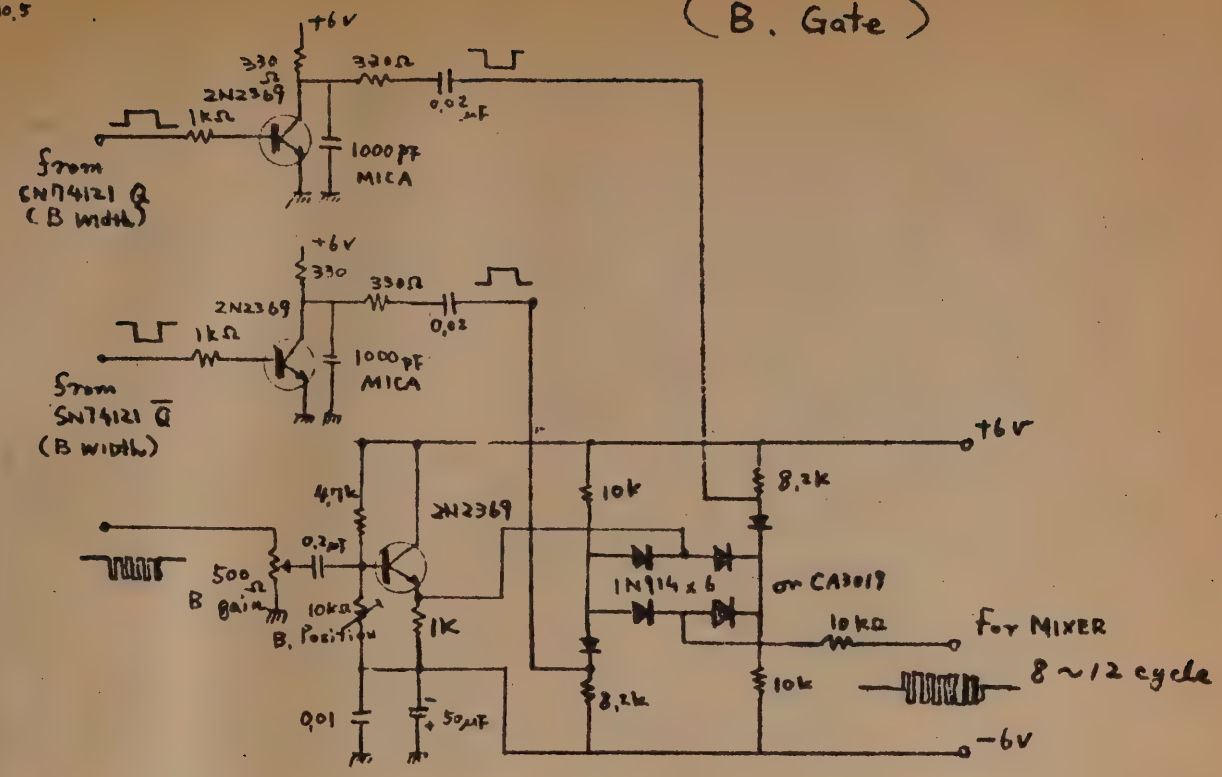


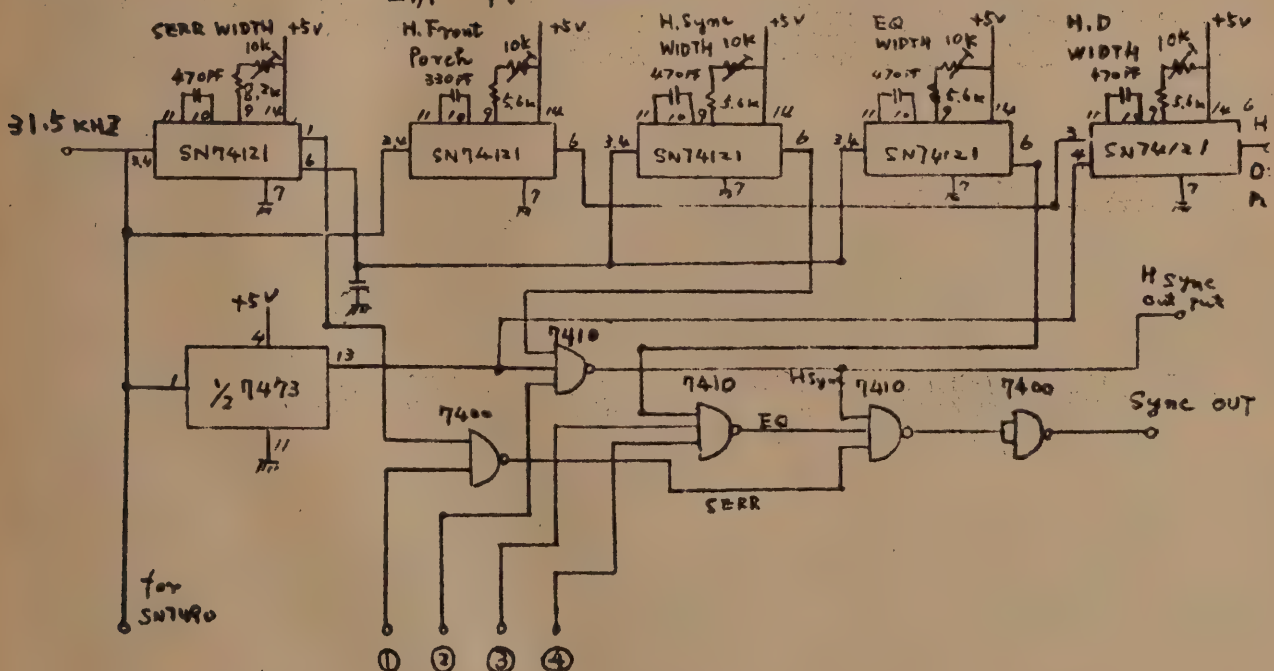
No.5

(B. Gate)



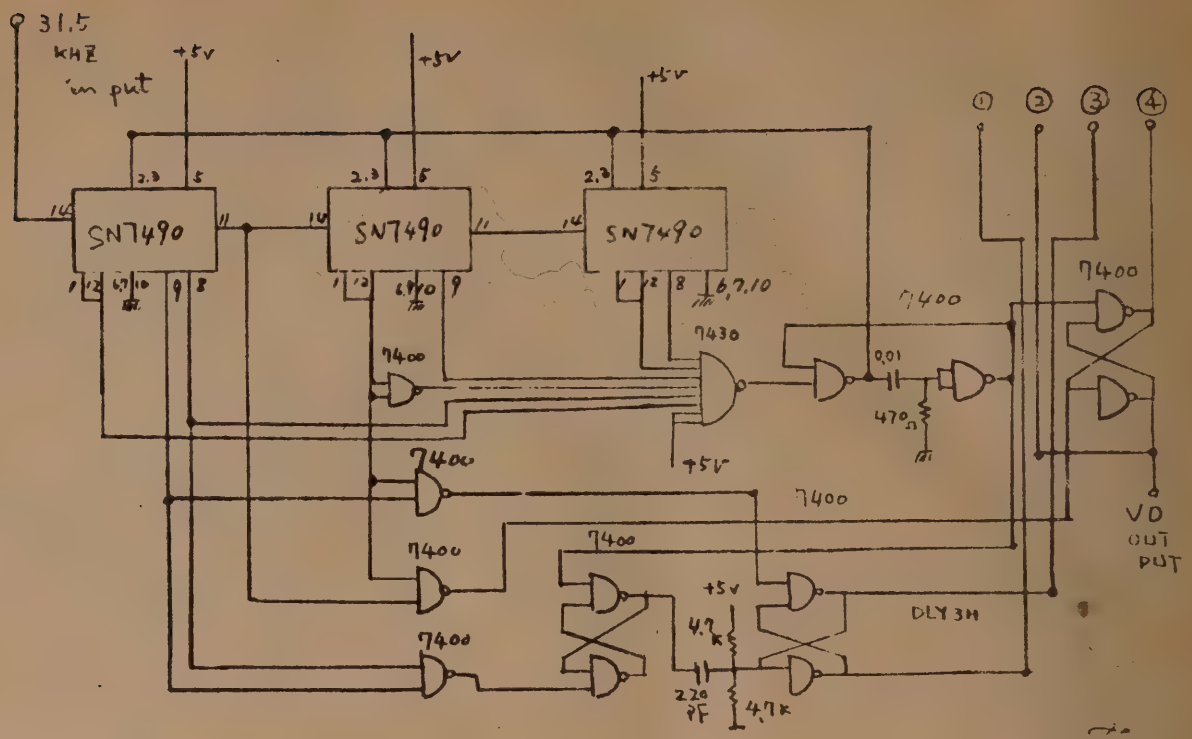
No.6

EIA TV STANDARD SIGNAL GENERATOR (1)



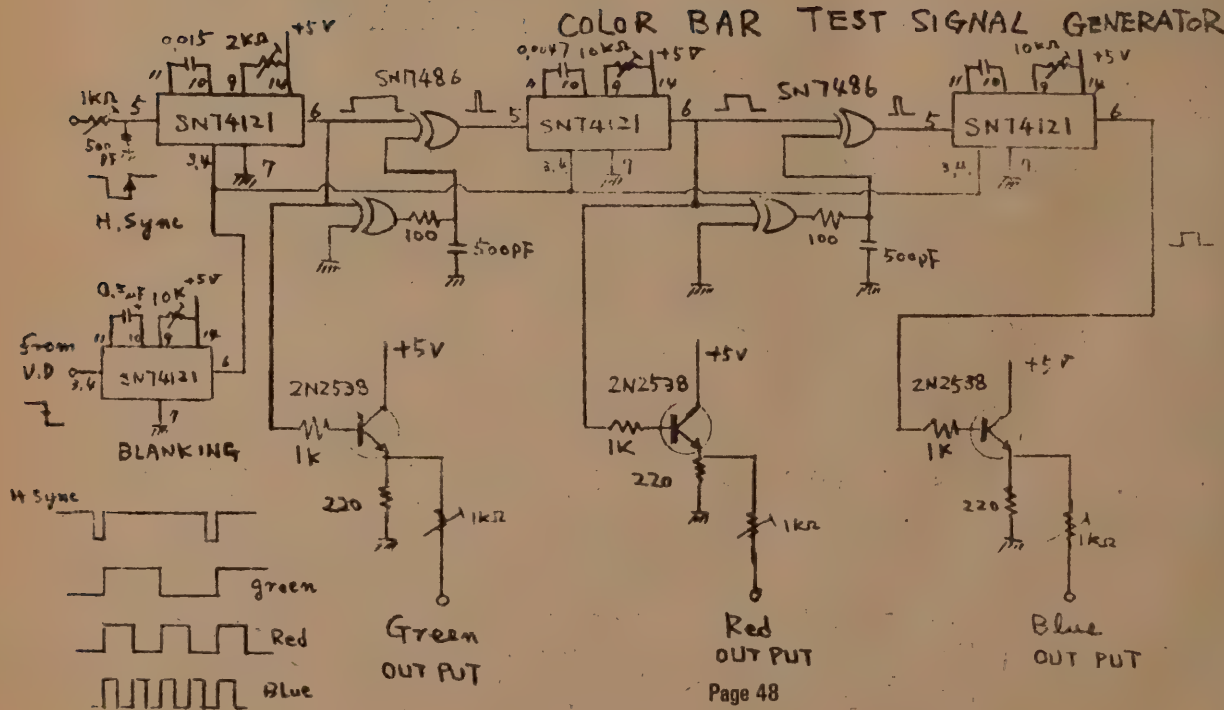
No.7

EIA TV STANDARD SIGNAL GENERATOR (2)



No.8

COLOR BAR TEST SIGNAL GENERATOR



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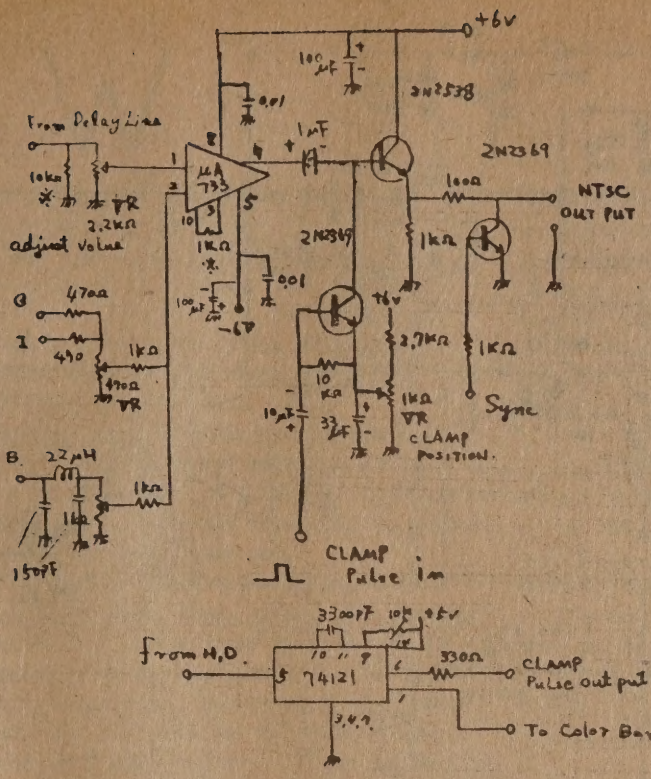
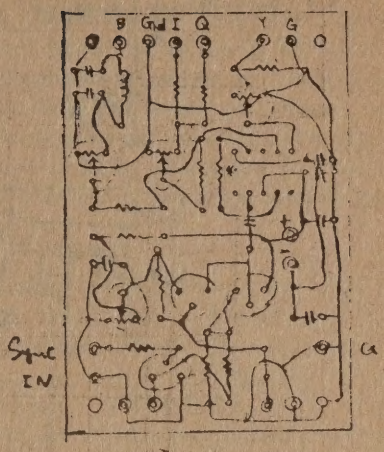


Sync. MIXer clamp.

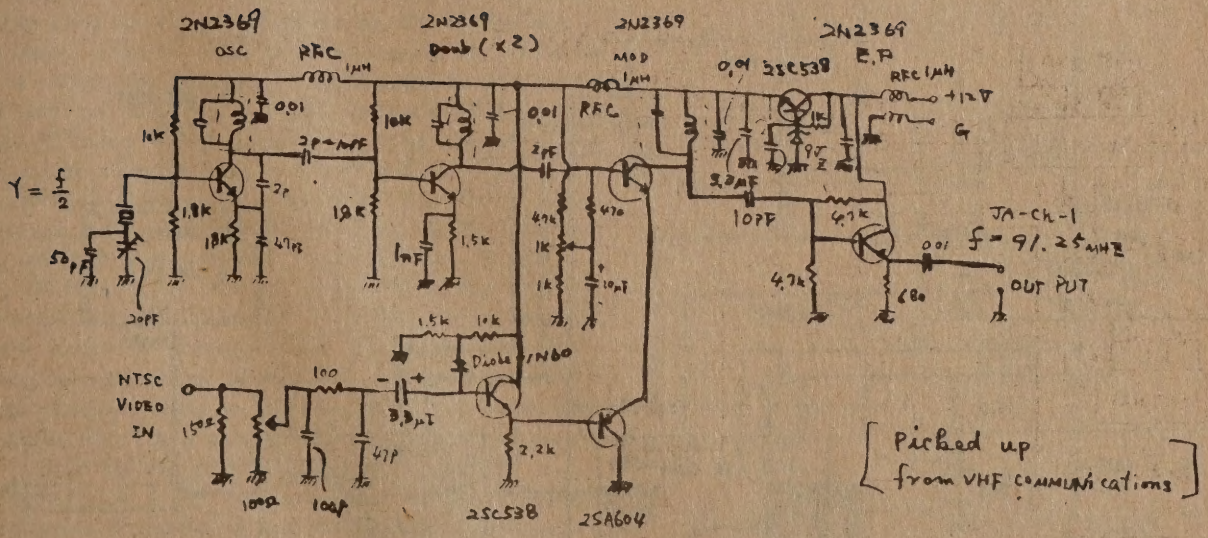
Top view

* adjust this one.



1978, JAN.

NO. 10

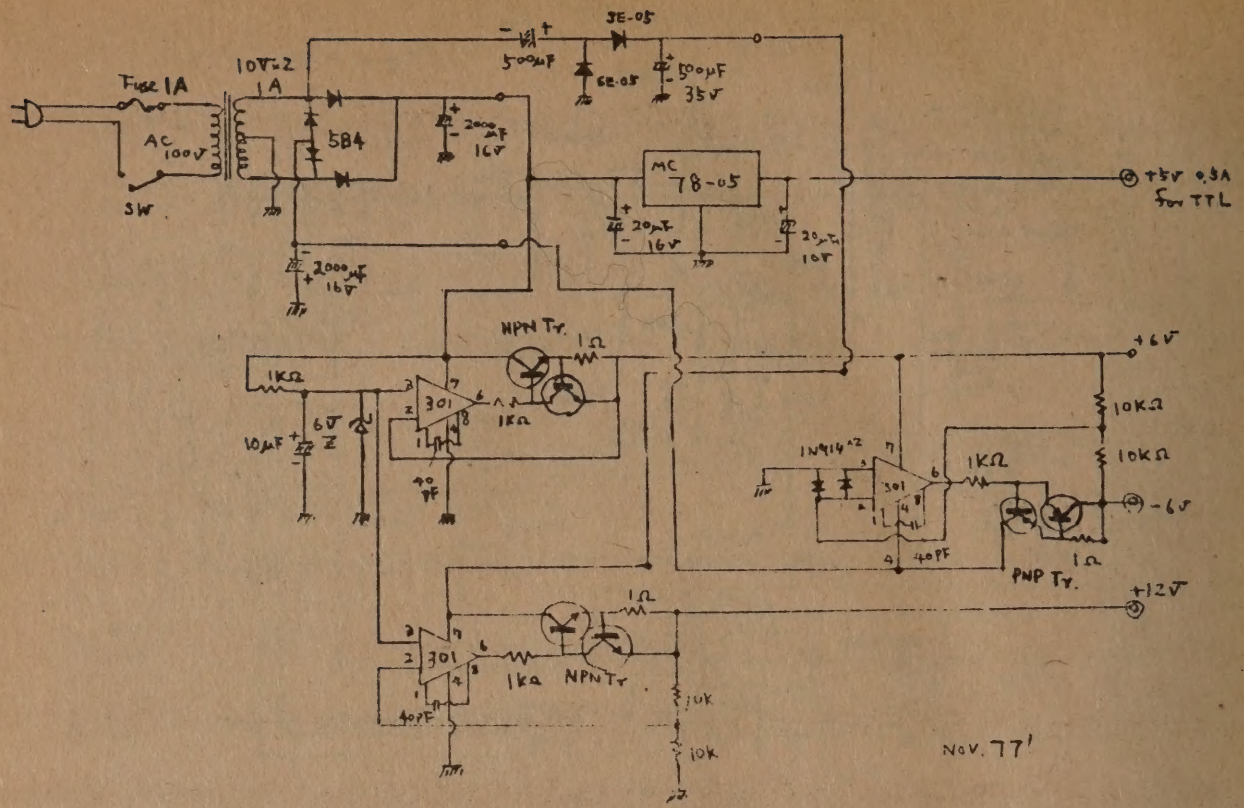


[Picked up from VHF communications]

RF MOD

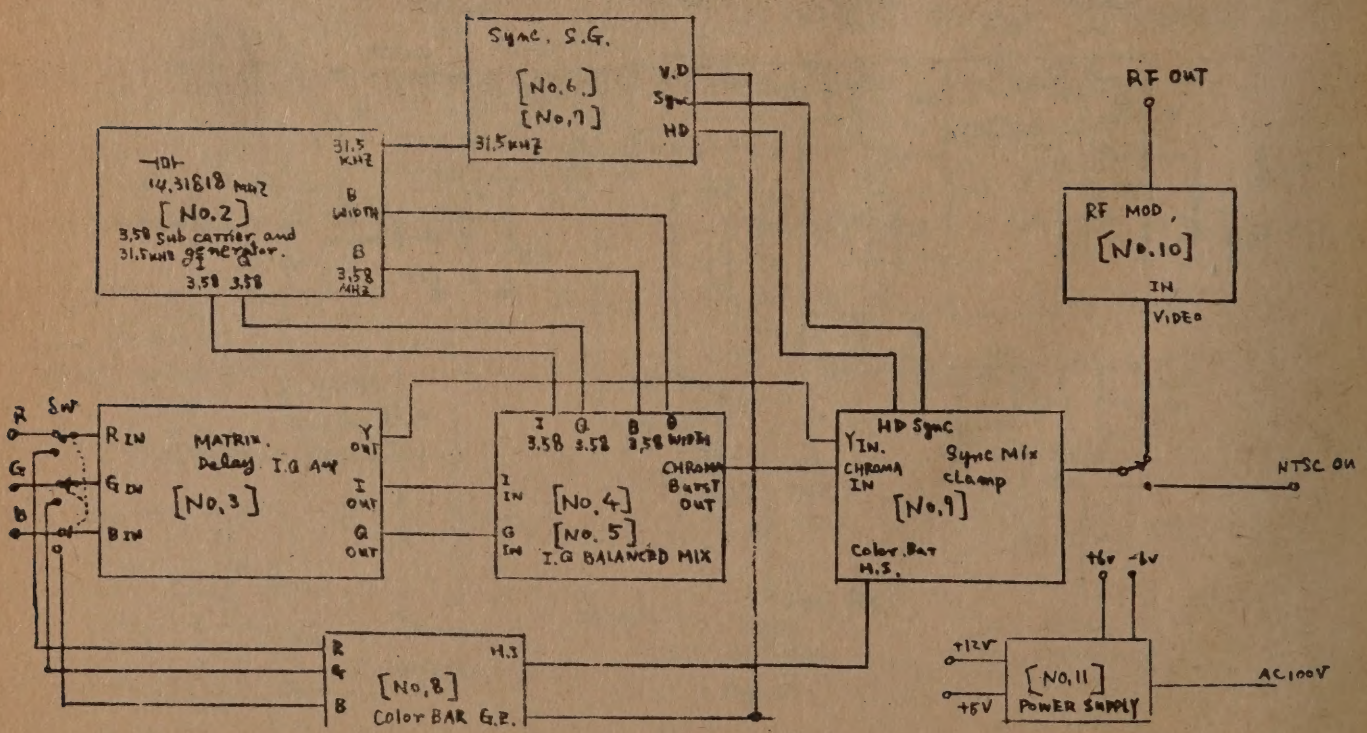
No. 11

AVR Power Supply.



No. 12.

BLOCK DIAGRAM



W I N

Current contest and award info from A5.

MASTER SCA NN ER AWARD

For SSTV activity. Several award levels:
Work 5 stations on each of 5 bands (25 contacts)
" 6 " " " " 6 " (36 contacts)
7 on 7, 8 on 8, 9 on 9, or 10 on 10 bands.
OR: 25 on 10 meters (also 100, 500 and 1,000)
OR: 25 on OSCAR (also 100, 500, 1000)

Award is handsome gold certificate proclaiming your achievement, suitable from framing and a place of honor in your shack! Send $1 per application for postage and handling. Do not send QSL's, unless you send funds to cover their return.

Procedure: Prepare a log of the stations you worked, and on what bands, date, time. All contacts must be two way SSTV. Logs should be certified by two hams, not related to applicant, or DX contest judge if applicant is non-US. Successful applicants will receive their certificates by air mail within two weeks of receipt of application. Also, prominent mention within our hallowed pages! Proclaim your-SSTV activity.

GOOD IMAGE AWARD

Given once a year, this is a prestigous award for public service by hams involving any video mode. The award is a camera image tube mounted on a stand with brass name/call plate attached, noting year awarded. Award is usually presented in home club meeting of winner by A5 Publisher, Henry Ruh. (Sorry, this does not apply to overseas winners cause the boss can't afford the travel expense but we will arrange for suitable honors) Past winners include: Warren Weldon W5DFU for his services to the Tulsa weather service, Charlie Spitz W4API for numerous achievements in UHF and ATV, Jet Propulsion Lab Amateur Radio Club, N6V, for public service science education efforts, Bruce Brown WA9GVK for the development of the ATV (fast scan) repeater pioneering work. This award is given upon recommendation of A5 readers or staff and is something of which to be very proud! Recomendations may be sent anytime and selection is made in April and announced at Dayton Hamvention.

TECHNICAL ACHIEVEMENT AWARD

A new award, a 3 yr. subscription to ATV Magazine plus a plaque announcing and proclaiming the award is offered for outstanding technical advances in video. This is limited to persons who develop or contribute significant advances to the state of the art in any area of ATV activity. This is presented as occasioned and is not necessairly an annual award. Applicants may be nominated by others or themselves, or staff of A5. Applicants must have provided a publishable paper or project to A5 to qualify. Information provided cannot be from a commercial venture, nor may the applicant have received wages, commission or royalties for the project. More than one person may have worked on the project and thus more than one award may be issued.

All applications for any award should be sent to: Amateur Television Magazine, P.O. Box 1347 Bloomington, In. 47402 Mark the envelope AWARDS.

Please do not send subscription requests with an award request. Subscriptions should be sent to, A5, Box 1347, Bloomington, IN 47402.

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